# American Artisan

## THE WARM AIR HEATING AND SHEET METAL JOURNAL

FOUNDED 1880

*Inland Sheets were used in the sheet-metal work in the World's largest building . . . the Chicago Merchandise Mart. Sheet-metal work done by the R. B. Hayward Co.*

## *A Reputation, like a Building, must have a* Good Foundation

OUT of the experience, skill and labor you sell comes your reputation. But the foundation of that reputation is the raw material with which you work. If the material you use on any job is poorly chosen for the purpose in hand, if it fails to last as long as the customer thinks it should, your work, no matter how good, comes to naught . . . your reputation is impaired.

To have a solid foundation for their workmanship, more and more sheet-metal contractors are standardizing on Inland Sheets. Inland Sheets are available for every purpose. They are made particularly for that purpose. Their long and satisfactory service is assured by the skill, the knowledge, the broad experience which Inland brings to the manufacture of steel.

Inland will furnish you with a dependable foundation for your business. Consult with Inland freely—as to your needs.

**INLAND STEEL COMPANY**

ABLE SERVANT OF THE CENTRAL WEST

Sheets
Bars
Plates
Structurals

Rails
Track Accessories
Rivets
Billets

38 SOUTH DEARBORN STREET, CHICAGO



JUNE 21, 1930

# The Symbol of Quality

Home-owners, architects and builders know the Anaconda trade-mark as the symbol of quality. It is their assurance of satisfaction. Sheet metal contractors recognize this symbol as a selling help. Fabricators of gutters and leaders retain the trade-mark on their products. They realize its value.

The uniform quality of Anaconda Copper is the direct result of more than a century's experience in the production of Copper, Brass and Bronze. Great care with each process, from mine to finished product, is your assurance of unvarying quality and uniform workability. Anaconda Copper in trade-marked sheets, rolls, Economy Strips, gutters and downspouts is stocked by leading distributors. The American Brass Company, General Offices: Waterbury, Connecticut.

ANACONDA
from mine to consumer

# ANACONDA COPPER

# Easy now to tell full weight... tested Copper

EVER wonder about the uniform quality of a product? Chase does not want you to bother about that in regard to copper products. That's why the Chase trademark is on the Chase metal you use.

You'll find this mark on every length of Chase Gutters and Downspouts. It's your guarantee of tested full weight—16 oz. copper. Chase soft roll copper, flat strip copper and copper roofing accessories are all of proper gauge and of uniform high quality.

You can get any Chase copper you need from the nearest of the 18 Chase Warehouses. Try a Chase warehouse on a rush order and see how rapidly your copper is shot to you.

*Remember Chase Copper Nails will make the job rustless throughout.*

## CHASE COPPER LEADERS ▲ GUTTERS ▲ FLASHINGS

A PRODUCT OF CHASE BRASS & COPPER CO.—Incorporated—Waterbury, Conn.

WAREHOUSES—New York . . . Boston . . . Newark . . . Philadelphia . . . Baltimore . . . Cincinnati . . . Cleveland Detroit . . . Chicago . . . St. Louis . . . New Orleans . . . Los Angeles . . . San Francisco . . . Buffalo Milwaukee . . . Minneapolis . . . Seattle . . . Oakland . . . (Also Branch Offices in Pittsburgh and Dallas.) Canadian Rep.: W. E. Booth Co., Ltd., Toronto, Ontario. Mills and Home Office, Waterbury, Connecticut.

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INDEX PAGES—30 and 74 [VOL. 99, NO. 13—$2.00 PER YEAR] BUYERS' DIRECTORY—70 and 72

# A FURNACE FOR

NO MATTER what fuel your customer wants to use, the FRONT RANK furnace will serve him better and cheaper.

Take Oil, for instance, which so many of the better homes are now using, one FRONT RANK Dealer who sells oil burners as well as furnaces writes, "We consider the FRONT RANK Steel Furnace very adaptable for oil burning." Recent tests made by Oil Burner People themselves show efficiencies as high as 80% with the FRONT RANK.

Or Gas — In natural gas territory, thousands of conversion gas burners are being sold. They work much better in FRONT RANK furnaces because of the long fire travel, greater radiating surface and *gas tight construction*.

As for the solid fuels — Coal and Coke — the FRONT RANK for 42 years has burned them more efficiently for the same reasons that it is now found best for oil and gas.

HEATING SUPER AIR SYSTEMS

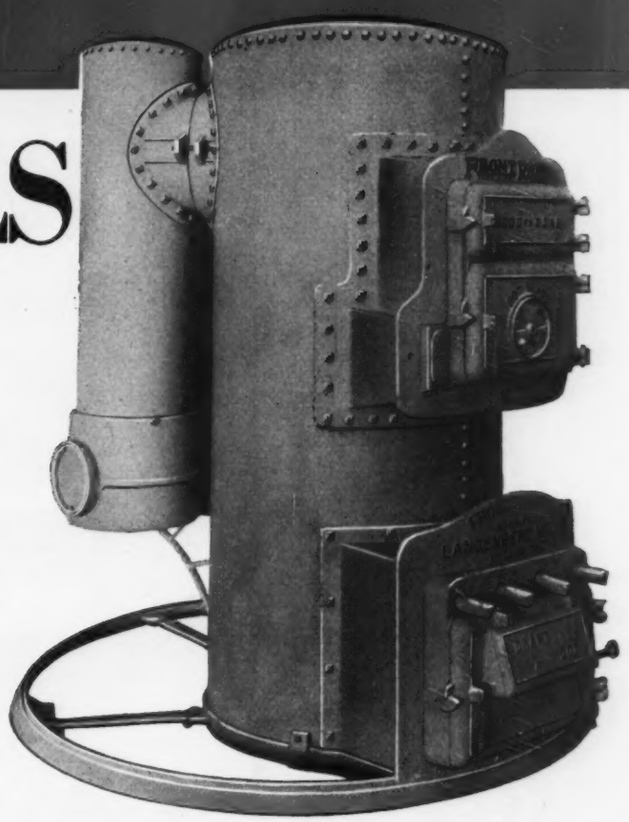
HEATING FRONT RANK SYSTEMS

TRADE NAME REGISTERED

*Say you saw it in AMERICAN ARTISAN—Thank you!*

# HEAT WITH COAL"
# WANT TO HEAT WITH OIL"
# GAS"

# ALL FUELS



## BIG PROFITS FOR FRONT RANK DEALERS

When you handle the Front Rank line, your business is linked with that of a firm that has maintained its leadership in the warm air heating industry for over 42 years. Front Rank prestige and Front Rank popularity are yours. You have a furnace to sell that represents the highest development of heating engineers. You have facts and figures to prove your claims and a list of thousands of users to endorse them. Front Rank dealers know the value of the Front Rank franchise. It will pay you to learn of it, too. Write for details today. Get into the Front Rank family now for the big selling season ahead. It's the profit that counts. . . . . .

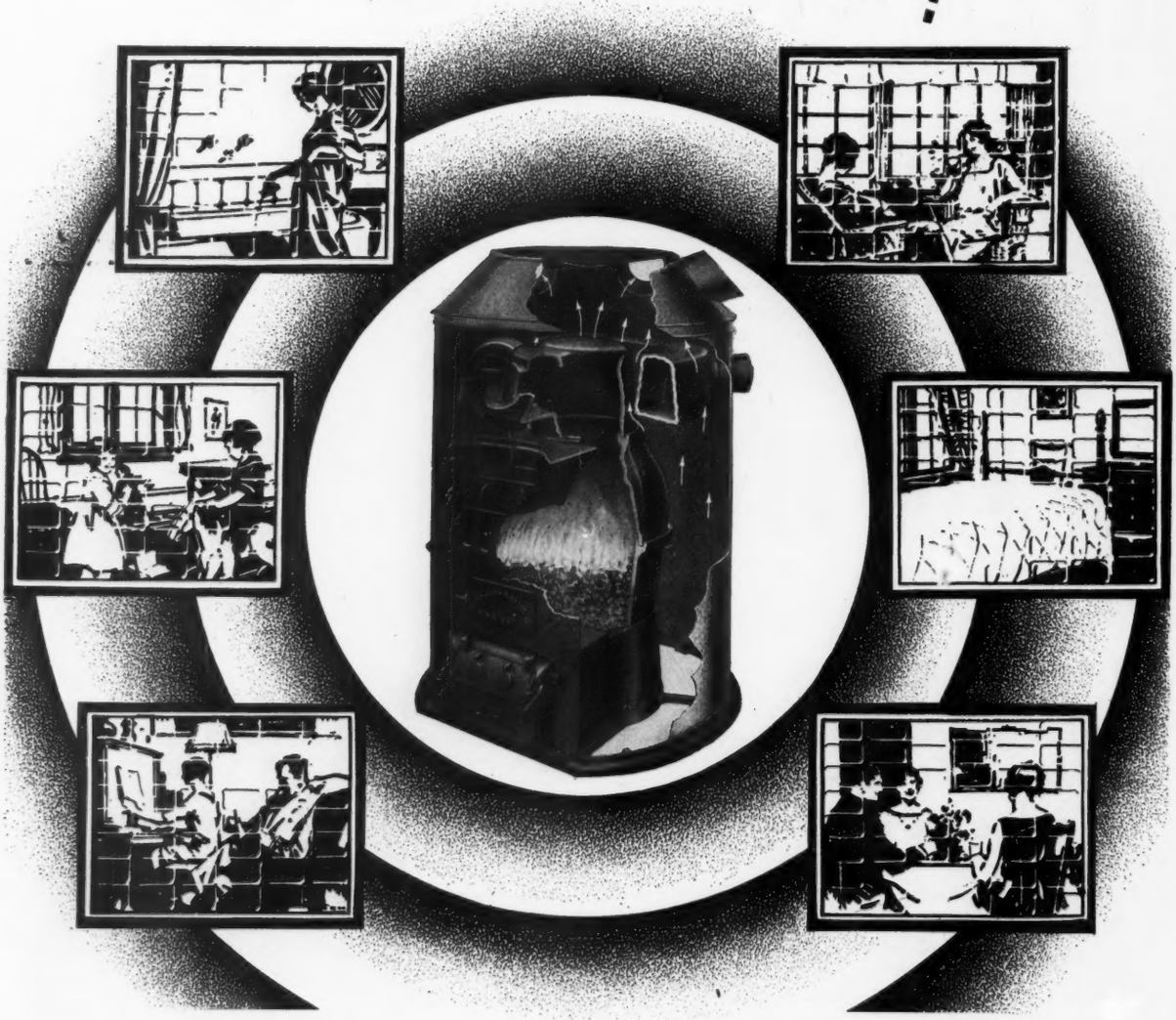
## *Triple Protection*

In the modern Front Rank All Steel Furnace, seams are riveted tight — then calked with an air hammer to make an absolutely tight seam even when cold. As a further protection, fillet welds are now being added to all seams on drum and radiator, using the electric arc process. Thus seams are absolutely gas tight, an essential feature in a furnace used with oil burners, mechanical stokers and conversion gas burners. . . .

# LANGENBERG MFG. CO.

## 4545 EUCLID AVE., ST. LOUIS, MO.

# A BULL'S EYE!



MOST people don't want a lot of machinery in their cellar: they want every room uniformly heated, with as little fuss, and as little expense as possible. For them, the Richardson "Perfect" Warm Air Heater hits the bull's eye. They don't have to gamble on gadgets; they *know* that this heater, for generations, has been doing just the job they want done.

Continual technical studies and experimentation have produced countless improvements in this heater. Naturally, its popularity grows with every year.

Make a bull's eye with your customers. Your installation of a Richardson "Perfect" Warm Air Heater is a real service to them and a great credit to you.

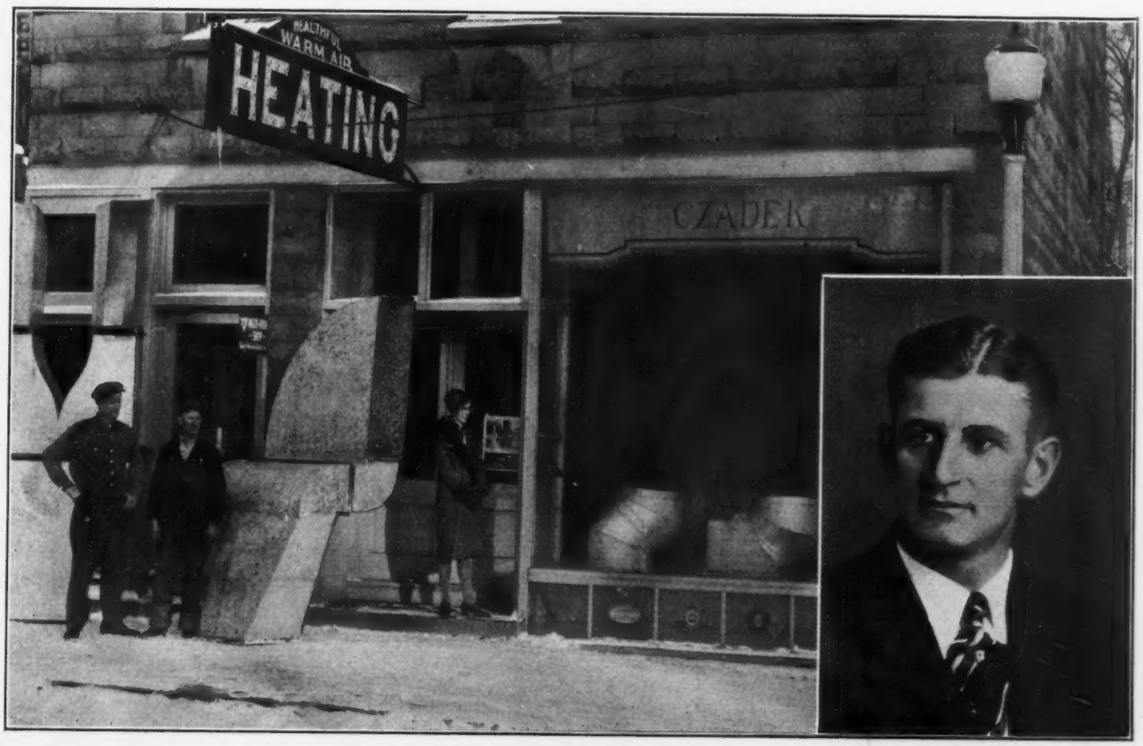
***We believe in and are members of The National Warm Air Heating Association***

## RICHARDSON & BOYNTON CO.

*Manufacturers of "Richardson" "Perfect" Heating and Cooking Apparatus Since 1837*

**260 Fifth Ave., New York** **Utica, N. Y.**

Newark Philadelphia Port Chester Brooklyn Boston Cleveland Chicago Buffalo Minneapolis Cincinnati Detroit Providence




WE INSTALL

SKYLIGHTS, VENTILATORS and ROOFING — EXPERT FURNACE INSTALLING and REPAIRING

111 Dean Street—Phone 281-J

BY STANDARD CODE

**WOODSTOCK SHEET METAL WORKS**

FRANK CZADEK

WOODSTOCK, ILLINOIS

December 13, 1929.

Meyer Furnace Co.,

Peoria, Illinois.

Gentlemen:

We are preparing to close our books on one of the best and most successful years that we have enjoyed since our modest beginning, six years ago.

The writer of this letter wishes to make known the fact that the Meyer Furnace Company is in a large way responsible for this success, through the splendid way in which they have co-operated with their dealers.

Any request that we have made of the Meyer Furnace Company during the past six years, whether large or small has always been handled to our utmost satisfaction. We are going stronger on Weir Furnaces in 1930 than ever before, because we have found that it pays. It builds a prestige for the dealer that absolutely puts his work out of the price competition class.

With our most sincere good wishes for the New Year, we remain

The Woodstock Sheet Metal Works

FJC*H

Frank J. Czadek

## "A Pleased Customer Is Our Best Advertisement"

***Mr. Frank J. Czadek***

**proves what can be accomplished even in a small city.**

**He started conservatively, but, in the course of a few years, has "graduated" to to the "carload class."**

**The WEIR and our dealer-help can do the same for you.**

# THE MEYER FURNACE COMPANY

**1300 South Washington Street** **Peoria, Illinois**

# It's the design of the *radiating surfaces* that counts—give your customers more heating efficiency with—

## Vernois

VERNOIS furnaces are made of the highest grade, specially selected iron. Large tight fitting cleanout, fire and ash pit doors. Equipped with either Ball Bearing Round grates or Triangular Bar grates. Vernois grates are exceptionally strong and easy operating. Upright shaker adds to convenience.

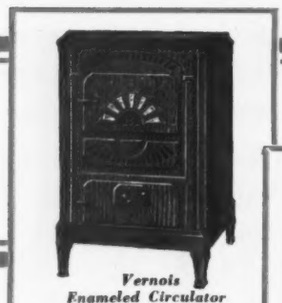
NEAT appearance and construction that embodies convenience features—these are important and are not overlooked in Vernois furnaces, but notice particularly ***the design of the radiator, combustion chamber and fire pot.***

The Vernois radiator is one piece, large and oval shaped. There are no sharp angles, seams or joints —no place for soot or dust to accumulate. Every inch of the Vernois radiator radiates heat and the draft does not get choked.

The illustration clearly shows this superior construction as well as the practical, efficient design of the other radiating surfaces. With the Vernois you can offer your customers greater heating efficiency and this is what you need now to clinch sales.

Let us tell you about the close personal manner in which we cooperate with Vernois dealers. Just ask us to tell you why it will prove more profitable for you to sell Vernois furnaces.

**MT. VERNON FURNACE & MFG. CO.**
**Mt. Vernon, Ill.**



*Vernois*
*Enameled Circulator*

*Vernois*
*Gas Range*

## Vernois

***Vernois Circulators and Gas Ranges give you a complete line from one source of supply. Write today for full details on the Vernois complete line.***

# The public knows Round Oak quality

***The Round Oak Furnace Agency has always been a valuable franchise—now we are making it more attractive than ever before.***

• • •

THE Round Oak Folks supply many dealer helps —practical aids which help create more business. The Sales, Engineering and Advertising Departments are keyed up to render real service to dealers in developing a permanent and profitable furnace business.

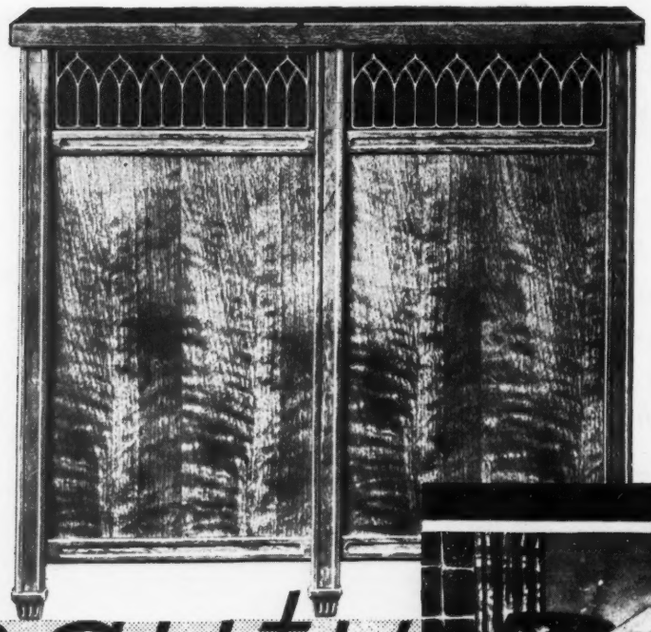
HEALTHFUL, dependable and economical heating service is rendered by the Moistair Blended-Iron and Boiler-Plate furnaces, leaders in the field of quality and heating efficiency features.

THE Round Oak agency in your territory will get the cream of the furnace business. If you are interested in cashing in on Round Oak good will—if you are desirous of generous dealer cooperation — if you want to handle reliable quality and make better furnace profits, write for full details today.

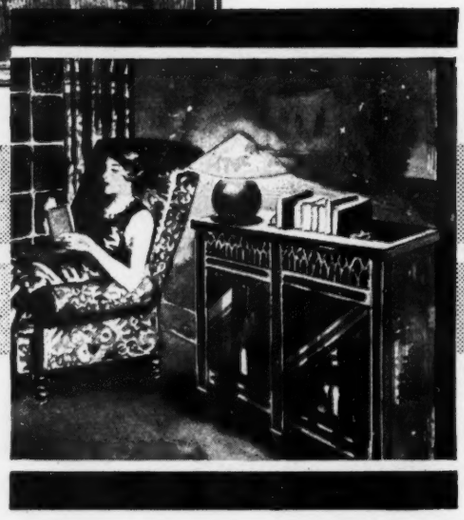
THE BECKWITH CO.
**Dowagiac**
**Mich.**
***Established 1871***

*reap the benefit of Round Oak---*

1. CONSUMER ACCEPTANCE
2. CONSUMER SATISFACTION
3. LIBERAL DEALER PROFITS



# Beauty COMFORT



## ●● Here, at last, is a Cabinet Heater You Will be Proud to Install in your Home

Why recommend or sell any heater that is, at best, a temporary make-shift?... that disfigures even the humblest room?... or serves a useful purpose, at the most, only three to five months out of every year?

Women look upon the Payne Console Heater as a welcome addition to their home surroundings... a stand or table of modern design and finish that brings beauty as well as comfort!

Once installed, it becomes a "beauty spot" instead of an eye-sore. It takes up no more space than a bookcase. It circulates fresh, pure warmth on a moments notice, yet top and sides remain cool always . . . no scorched walls or rugs . . . no hot spots to burn the children's fingers . . . no cold floor drafts to cause discomfort. Clean, pure, warm air circulates in every nook and corner. Vent carries unhealthful gas fumes out of doors.

Here is a real all-season load builder A heater that sells on both appearance and performance. Why offer your customers any heater that offers less? Complete sales literature and prices sent on request.

## PAYNE Console HEATER

*Warehouse—Buffalo, N. Y.*
*Dealers Everywhere*

*Jobbing Connections in All Principal Cities*

**MANUFACTURED ONLY BY THE PAYNE FURNACE AND SUPPLY COMPANY INC.**
**BEVERLY HILLS, CALIFORNIA**

THERE'S A PAYNE HEAT SYSTEM FOR EVERY CLIMATE AND BUILDING

*Say you saw it in AMERICAN ARTISAN—Thank you!*

# 30% INCREASE

1930 IS A MIDLAND YEAR

## IN MIDLAND SALES

[YET BUILDING IS AT A LOW EBB]

2 IMPORTANT REASONS

MIDLAND CLEANER HEAT PRODUCTS

This is reason No. 1 which explains the fast increasing sales of MIDLAND-MADE products. MIDLAND announced Cleaner Heat scientifically built steel furnaces nearly two years ago. Their acceptance was immediate. The Warm Air Heating Industry desired units that were dependable—surer—cleaner—more efficient—better constructed—and fully guaranteed. MIDLAND'S EL CAPITAN and TRUE-STEEL met the requirements. That is one reason why MIDLAND'S sales steadily climbed. The MIDLAND name on a product is your assurance of customer satisfaction.

MIDLAND ADVANCED DEALER CO-OPERATION

Reason No. 2 is the close co-operation between manufacturer and dealer. MIDLAND feels that a product is no better than the co-operation which is back of it. A dealer is made to feel that the entire MIDLAND Organization is behind him and ready to assist him in all his problems. MIDLAND doesn't give just general co-operation, but analyzed co-operation, based on new business methods, better type advertising and merchandising plans. A dealer is more than a dealer. He is a part of the MIDLAND institution. This is the other reason why MIDLAND sales have increased more than 30% over last year and continue to increase each week.

***Business is good! Of course, building is at a low ebb, but ride the crest of the fast growing sales on MIDLAND products. Write today for complete information.***

## THE MIDLAND FURNACE CO., COLUMBUS, OHIO

MIDLAND STEEL RIVETED and CALKED IS BEST FURNACES

# A distinctive, exclusive feature marks each of these furnaces

## *EXCLUSIVE PATENTED RADIATOR DESIGN*

NOTICE the absence of clean-out. This radiator design eliminates soot collecting as feed chamber and top radiator are constructed to allow communication between them bringing the opening of the fire flues of the radiator directly into the feed chamber.

Show your customers how this construction does away with objectionable cleaning of radiator and adds to the efficiency of the furnace and you'll close more sales.

## *A NEW CELLULAR ONE-PIECE FIREPOT*

THIS new and better firepot construction supplies an evenly distributed air blast which provides complete combustion. Another feature is the Elbow Shaped Flue Collar on the inside of the radiator turned up so the heat within the radiator must follow the castings to the top before entering the flue. These better heating features are real sales clinchers.

## *A CAST IRON SOOT BOX AND CLEANOUT*

THE Wise Furnace is not just another steel furnace—neither is it a product made just good enough to "get by." It's a high grade furnace in every respect. It is made of highest quality material and is both riveted and welded and has large radiating surfaces. When Wise designed this furnace it eliminated the one weak spot found in other steel furnaces. The exclusive feature of cast iron soot box and cleanout on the radiator gives you a strong selling point.

Know all about Wise furnaces—there are dozens of other features on each number of the Wise line which makes confining all your purchases to this one source a wise decision. Write for complete details today and ask for literature on the Wise Gas Furnace.

WISE FURNACE CO., AKRON, OHIO

# WISE FURNACES

# YOU CAN CHALLENGE AND BEAT ALL COMPETITION

WITH THE

# CHALLENGE

*(New Improved 1000 Series)*

**LARGER GRATE AREA**

**GREATER HEATING SURFACE**

**INCREASED STANDARD CODE RATING**

## *A good high quality furnace at a price that clinches sales—*

THAT'S what you want and here it is. The Challenge is not a skimped product—its unusually fine design makes for durability and heating efficiency yet allowing lighter weight.

Every part is a feature and its grate area is much greater than its Standard Code Rating.

The Square-Back Ashpit—Triple-Seal joints—Lever Shaker handle — Straight line two-piece fire pot—extending smoke pipe connections and pouches—all of these are features that make it a sales getter.

***Write today for full details and prices on this new 1000 Series Challenge Furnace. Make your sales show a bigger profit***

## STANDARD FOUNDRY & FURNACE COMPANY

**DE KALB, ILLINOIS**

***Also Manufacturers of Hero Air-Washer and Titan Superheater Furnaces***

*Mention AMERICAN ARTISAN in your reply—Thank you!*

**5 WAYS TO MAKE MORE FURNACE PROFITS**

1 Develop Prospects

**2. Sell A Good Furnace**

3 Surpass Competition

4 Cut Installation Costs

5 Keep Them Satisfied

THE A.B.C's OF THE FURNACE BUSINESS

If you are in the furnace business to build a future, you want a furnace that has a future—as well as a past. A furnace with a performance record—with reputation and prestige, because a furnace with these qualities sells easier and your selling costs are lower. Then you want a furnace that is easily installed and set to working properly — for that cuts down your overhead. The NIAGARA is just that kind of a furnace—39 years of constant improvement has made it such. The NIAGARA is full size—has fine accurate castings, tight joints, makes a permanent job. It's free from faults, is smokeless, ashes are easily handled. The NIAGARA has an extra large humidifier—forced circulation with fan, if desired —efficient, economical on fuel—adaptable to either gas or oil. It is thoroughly modern in appearance and finish.

*The NIAGARA with its modern appearance and performance wins the support of contractors. They depend upon it to help sell their property, it reflects compliments on their good judgment.*

# NIAGARA

**WARM AIR HEATING SYSTEMS**

**THE FOREST CITY WALWORTH RUN FOUNDRIES COMPANY**
**CLEVELAND, OHIO**

*Say you saw it in AMERICAN ARTISAN—Thank you!*

# Better for Burning Coal!

## Better for Burning Oil!

You can't realize all the improvements that have been made during the past year in steel furnace design, until you see the NEW Sunbeam. You will not appreciate the advances possible until you see the score of innovations introduced by the engineering corps of the world's largest makers of heating equipment.

Fume-tight and leak-proof because of fewer joints and the most modern welding equipment and methods; with a full height fire pot and duplex grates, the Sunbeam is without equal for burning oil and coal cleanly, efficiently and economically.

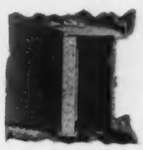
Alert heating merchandisers will want to know more about this improved product. For your convenience, a coupon is attached below.

**No Joint at Top of Drum or Pouch**

Joints are eliminated and mechanical strength is increased.

**Duplex Grates**

Only the most efficient, expensive grate is good enough for Sunbeam.



**Full Height Fire Pot**

14½ inches high. Holds virtually twice as much fuel as ordinary steel furnaces.

# SUNBEAM
## WARM-AIR FURNACES

# The FOX FURNACE Co.
## ELYRIA, OHIO

*A Division of American Radiator & Standard Sanitary Corporation*

***A Furnace for Every Requirement Quality and Price, Both . . . .***

**The Fox Furnace Company**
**Elyria, Ohio**

Please send us not only literature and prices on the new steel furnace, but also your plans for selling them.

Name.....

Address.....

City and State.....A7

*Mention AMERICAN ARTISAN in your reply—Thank you!*

THE MARSHALLTOWN LINE

# *Cut your cost of cutting metal with these time cutting machines . . .*

**There is a Marshalltown Shear for every size shop**

**Simple Design, Sturdy Construction and Blades That Stay Sharp—**

THE Marshalltown Rotary Shear handles sheets of unlimited width and cuts curves in any direction. It can be operated by hand or power.

There are only three moving parts and the blade remains sharp even after months of hard service. Being made of the finest tool steel, this machine will do ALL your cutting and do it accurately and quickly. Its price is such that you can put one to work in your shop at once. Write for catalog today.

This machine is our No. 18 Hand Power Shear. Every shop can use one or more. Takes sheets any size and does clean, accurate cutting.

*The Marshalltown Line includes Shears, Plate Bending Rolls, Pressure Gauges, Flue Welders, Punch Pressers, etc.*

**MARSHALLTOWN MFG. CO.**
**Marshalltown, Iowa**

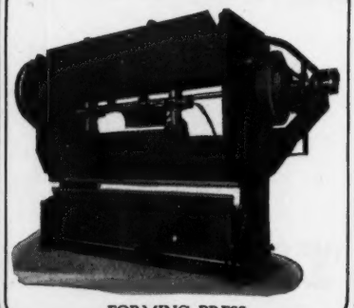
*The* **Marshalltown Rotary Shear**

# CHICAGO
## STEEL BENDING BRAKES AND FORMING PRESSES

The perfected result of over 30 years experience in the manufacture of sheet metal bending machines. Over 25,000 machines in use.

POWER BRAKE

Hand Brakes
Cornice Brakes
Power Brakes
Box and Pan Brakes
Forming Presses
Special Brakes and Presses

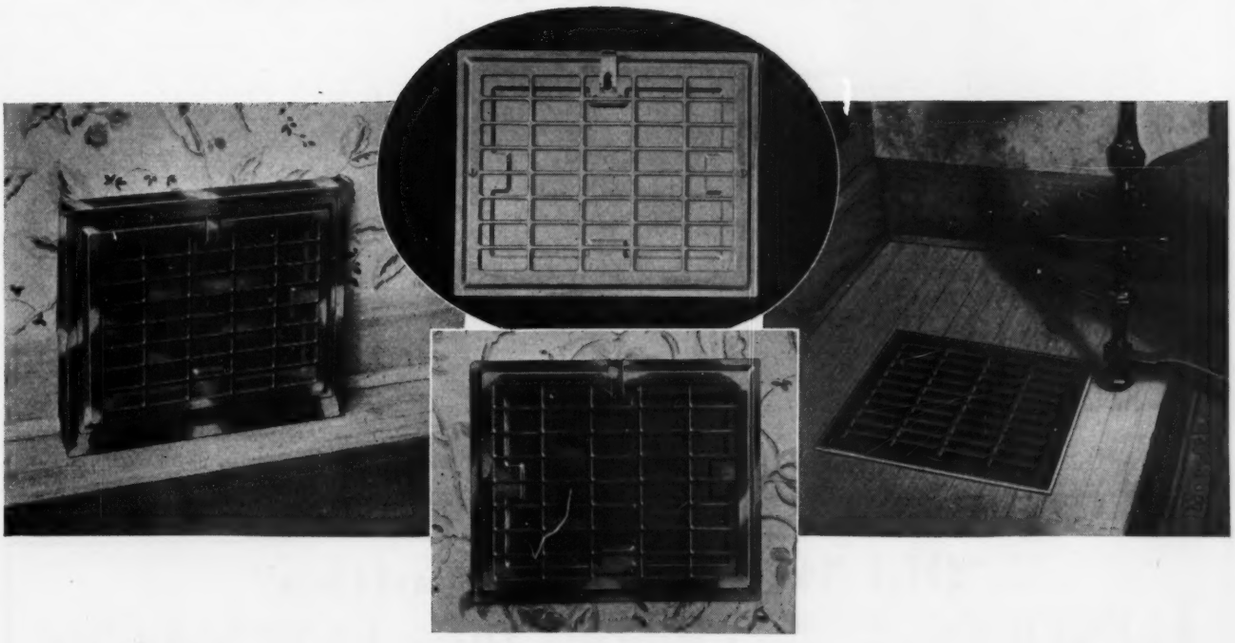


FORMING PRESS

The most complete and up-to-date line of sheet and plate bending and forming machines in the world. Lengths, 3 to 16 feet, with capacity to bend from the lightest metals up to ¾ in. plate, cold.

**DREIS & KRUMP MANUFACTURING CO.**
**7404 Loomis Street · Chicago**

# HERE'S A WAY TO BEAT YOUR PRICE-CUTTING COMPETITOR!



KNOCKING a competitor is one of the best ways to swing a job his way. Cutting prices to keep him from getting it, regardless of how much you lose or how little you make, is another way to insolvency. How much better to stick to your price and explain why.

Point out the salient good points about your furnace, the care you take to insure a faultless installation that will give maximum heating efficiency, satisfaction and uninterrupted service. Then clinch your argument by explaining that you install LAMNECK IMPROVED REGISTERS... and show how they are improved.

Registers are vitally important. If inefficient, they become the bottle's neck of the heating plant. LAMNECK'S do not "bottle up" heat in the ducts nor do they form dust traps in the floor. They are more efficient, cleaner, better looking and they're aiding many a conscientious furnace man in closing sales. Use coupon for our new 1930 catalog and if you wish, a sample register will be sent free on request.

THE W. E. LAMNECK COMPANY
416-432 Dublin Ave., Columbus, Ohio

**DON'T FORGET**
In spite of their many improved features and greater value LAMNECK Registers cost no more.

# LAMNECK
## IMPROVED REGISTERS

THE W. E. LAMNECK COMPANY, 416-432 Dublin Ave., Columbus, Ohio

Gentlemen: [ ] Please send your new 1930 catalog.
[ ] Please send, without obligation, a sample floor register.

Name _____

Address _____

*Mention AMERICAN ARTISAN in your reply—Thank you!*

# PEERLESS Leadership

**Shows itself head and shoulders above the ordinary warm air furnace. Your prospects will admit it . . . sold!**

***You Can Do It with Peerless***

Peerless leadership is again expressed in the Peerless Cast Furnace. It's a NEWLY DESIGNED furnace. New features and high grade features. It has everything you expect in a high grade furnace—except the price. Peerless Leadership is also expressed in the Pleasant Home, a steel furnace that allows you to sell a high quality furnace at a price that attracts more sales.

**PEERLESS BOILER PLATE**

***Write for catalog today***

**The PEERLESS FOUNDRY COMPANY** INDIANAPOLIS, INDIANA

***Where Steel Furnaces Have Been Built for 63 Years***

**Bailey-Farrell Mfg. Co.—Warehouse Distributors at Pittsburgh, Pa. Warehouse, Youngstown, Ohio**

**"Old Wine in New Bottles"**

LONDON BOILER PLATE *Quality Plus* FURNACES

***Are Cold Riveted and Welded Smoke, Gas and Fume Tight***

***Are Equipped with Either Duplex Basket Dump, Triangular or Draw-Center***

GRATES AND RADIATORS

**FOR SOFT OR HARD COAL, COKE OR OIL**

***"Feather Your Nest"— Write Today for Proposition***

THE LONDON FURNACE CO.

**LONDON, OHIO**

**THOS. W. PEARSON—Sales Manager**

*Say you saw it in AMERICAN ARTISAN—Thank you!*

# Revere

## COPPER & BRASS

# Products

*All*

# Revere Products

## marketed under this label

THE SEVEN PLANTS of Revere Copper and Brass Incorporated make a complete line of copper, brass and bronze products of finest quality.

All Revere products will be marketed under the Revere red, white and blue label.

This label stands for reliability, responsibility and service. The Revere organization is the oldest, their copper mills, located at important industrial centers, are the largest, and their equipment is the most modern in this country.

**SEVEN**
**REVERE PLANTS . . . . .** *See next page* ➜

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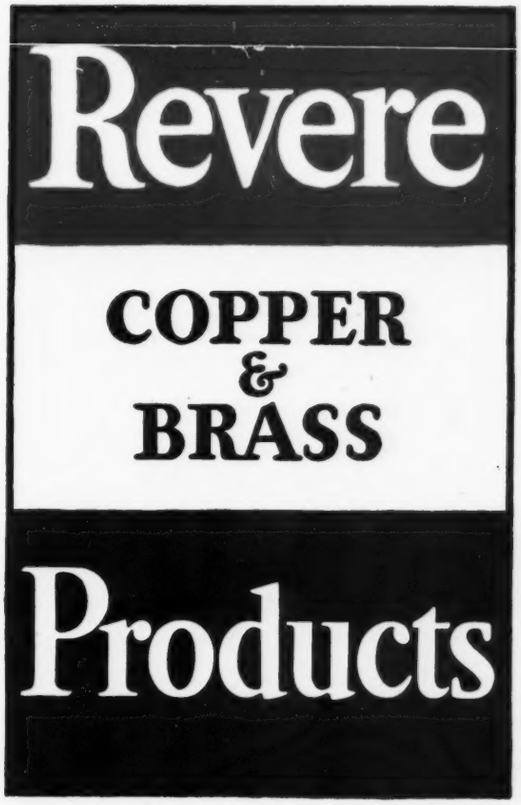
***"Feather Your Nest"— Write Today for Proposition***

## THE LONDON FURNACE CO.

**LONDON, OHIO**

**THOS. W. PEARSON—Sales Manager**




# *All*
# Revere Products
## marketed under this label

THE SEVEN PLANTS of Revere Copper and Brass Incorporated make a complete line of copper, brass and bronze products of finest quality.

All Revere products will be marketed under the Revere red, white and blue label.

This label stands for reliability, responsibility and service. The Revere organization is the oldest, their copper mills, located at important industrial centers, are the largest, and their equipment is the most modern in this country.

**SEVEN**
**REVERE PLANTS . . . . .** *See next page* ➔

# *These 7 plants*

**1.** Baltimore, Md. . . . Baltimore Copper Mills

**2.** Chicago, Ill. . . . Dallas Brass & Copper Co.

**3.** Detroit, Mich. . . . Higgins Brass & Manufacturing Co.

**4.** Detroit, Mich. . . . Michigan Copper & Brass Co.

**5.** New Bedford, Mass. . . . Taunton-New Bedford Copper Co.

**6.** Rome, N. Y. . . . Rome Brass & Copper Co.

**7.** Taunton, Mass. . . . Taunton-New Bedford Copper Co.

*manufacture*

# Revere

## COPPER *and* BRASS PRODUCTS

PAUL REVERE, in 1801, installed the first copper rolling mill in this country, which was operated by Paul Revere and Son. In 1828, Paul Revere and Son, combining with James Davis and Son, brass founders, started a chain of consolidations which finally culminated in Revere Copper and Brass Incorporated. This organization now operates seven plants, comprising better than 25% of the copper, brass and bronze mill capacity in this country.

**Revere Copper and Brass Incorporated**
**General Offices, Rome, N. Y.**

# You can be sure that every furnace joint is permanently tight if you use---

WAMPUM BRAND

LASTIK

# FURNACE CEMENT

## Smoke the "Pipe of Peace" with furnace joints

THOSE leaky furnace joints have caused you much trouble. One little leak has started an uprising on the part of many a good customer. Many good installations have been condemned to the stake just because the furnace cement you used didn't stand up.

Wampum Brand Lastik Furnace Cement is different. It's better and it forms a blockade against gas and soot leakage through long tough winters. As long as the furnace itself lasts its joints will be tight if you use this special furnace cement.

Let us tell you more about why Wampum Brand Lastik Furnace Cement is better—just send the coupon today.

**PLIABLE** —Wampum Brand is easy to work and is quickly applied. It is a soft gray paste that sticks to the metal like glue and becomes very hard under the heat of the furnace.

**NO CRACKING** —It stands the gaff and because of its special formula it will not crack or crumble. It gets hard but tough.

**NON-POROUS** —This cement can't fall away or shrink. It is a quality compound. It is firmly knit, acid-proof, heat proof and odorless. It contains no oils or other fume producing ingredients. It will not expand or swell.

**ECONOMICAL** —Wampum Brand Lastik Furnace Cement is a special high grade product but it is very economical. Order a can from your jobber now and notice the difference.

**LASTIK PRODUCTS CORP.**

*General Offices, Oliver Bldg.*
**PITTSBURGH, PA.**

*Also Manufacturers of LASTIK ROOF PAINTS and CEMENTS—LASTIKALK—LASTIK DAMPPROOFINGS*

LASTIK PRODUCTS CORPORATION,
PITTSBURGH, PA.

Gentlemen:

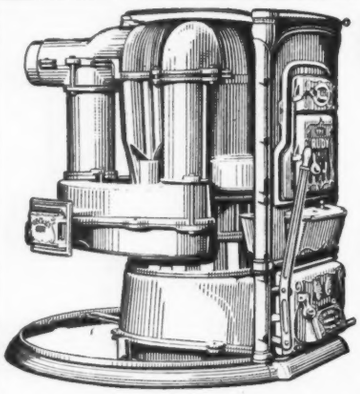
I am interested in Lastik Wampum Brand Furnace Cement. Send me full details.

Name.....

Address.....

My Jobber is.....

.....



Rudy Hy-Power

# RUDY

UNQUESTIONED QUALITY
INTELLIGENT LEADERSHIP
CORRECT ENGINEERING

Progressive Policies—Fair Prices — Honest Treatment

*We will honor your inquiry*

**RUDY FURNACE CO.**
Dowagiac, Mich.

LENNOX TORRID ZONE STEEL FURNACES

## An Emblem of Quality

The dealer who has never sold Torrid Zone steel furnaces has no conception of the many advantages this furnace line offers. To say you are familiar with Torrid Zone construction is not enough. There are, free engineering service, newspaper and dealer help advertising, financial aid, an unusual variety of furnace sizes, quick deliveries made possible by large warehouse stocks, and a score of other Torrid Zone service features of vital interest to every furnace dealer. Why not investigate for yourself Torrid Zone possibilities. Write for complete information on the Torrid Zone line.

**LENNOX FURNACE COMPANY, INC.**
Marshalltown, Iowa Syracuse, N. Y. Toronto Winnipeg

# WATERBURY SEAMLESS FURNACE

REG. U.S. PAT. OFF. PIPE OR PIPELESS

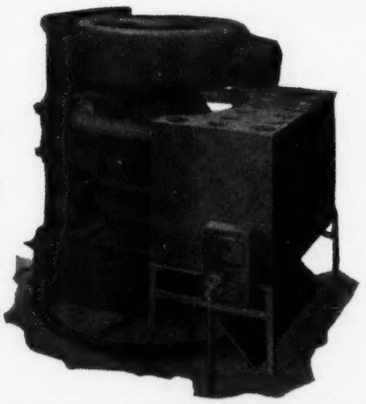
**The Waterman-Waterbury Co.**
1122 Jackson Street N. E.
Minneapolis, Minn.

*You can sell*
**GAS HEATING**
to OLD as well as new customers with
**The MUNKEL GAS ATTACHMENT**

It fits any coal furnace—it heats both units giving extra large radiating surface. Simple, efficient, economical and easy to install. Stimulate business and make more profits with the Munkel Gas Attachment.

*Write today for full details*

***The* MUNKEL-RIPPEL HEATING CO.**
*"31 Years of Service"*
Columbus, Ohio



*Warehouses in the leading cities*

# MONCRIEF FURNACES

The Series "C"

*Send for catalogs*

**THE HENRY FURNACE & FOUNDRY CO.**
3471 E. 49th St. Cleveland, Ohio

*A new furnace paste*
**FOR BETTER, NEATER AND QUICKER WORK**
***Non-Cereal—Non-Souring***

Asbestos Paper will not absorb it as it does cereal pastes. Paper does not become soggy—not so apt to tear.

Larco Mineral Paste does not turn brown—no stains—mice will not touch it either when moist or dry and it does not gum up the hands.

Larco Paste can be kept on hand mixed ready for use. It has greater covering qualities. It slips easily but adheres permanently.

*Order a trial can now — it will not sour — keeps any length of time.*

*Write for circular which tells all about it—get Larco prices.*

**WESTERN MINERAL PRODUCTS CO.**
OMAHA *(Formerly Larsen-Bennett Co.)* NEBRASKA

Your prospects will prefer the—

# GILTEDGE FURNACE

and *you* will prefer the profits and prestige the agency bring you

**R. J. SCHWAB & SONS CO.**
283 Clinton Street Milwaukee, Wis.

# "American Seal"

**FURNACE CEMENT**

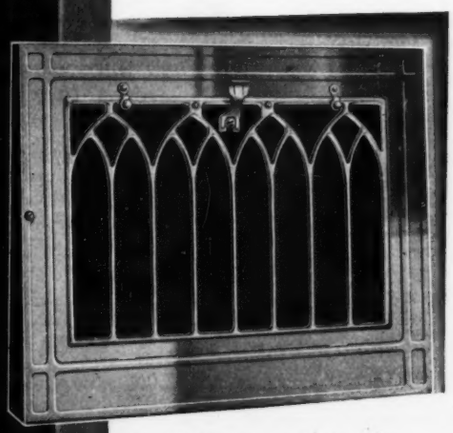
***Roof Cement—Stove Putty***
***Plumbers Putty***

**PAINTS AND SPECIALTIES**

**WILLIAM CONNORS PAINT MFG. CO.**
*Established 1852*
TROY NEW YORK

JAMES L. PERKINS, Western Distributor
140 South Dearborn Street, Chicago, Illinois

# STANDARDIZE *on the Line that gives you* DEFINITE *selling advantages*



No. 110 Series, two-piece register. Size 8 x 12 has full capacity for 10" pipe. Sidewall register and baseboard cold air intake to match.

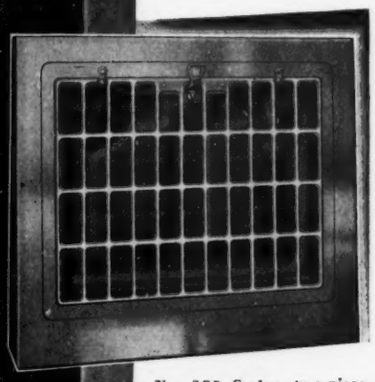
IN this day of extremely keen competition it is particularly important that you do not miss a single sales advantage.

Outstandingly attractive registers included in your proposal for the better class home will prove a ***decided advantage.*** And you'll find that kind of register in the H & C line.

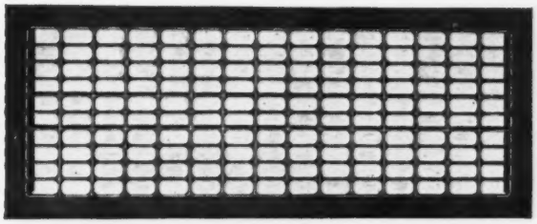
When price is the major consideration, low price that can still talk quality has a real sales kick. H & C registers of the most inexpensive types are sold for as little as any worthwhile register can be sold; and yet they are obviously superior, greater in air capacity, "quality-built" in every detail, thus providing a sales advantage of no mean importance.

If you haven't thoroughly investigated the H & C line, by all means do so at once. You will find that it furnishes worthwhile sales advantages against any class of competition—the reason why far more installers have standardized on this line than any other.

***See your jobber or write for catalog***



No. 150 Series, two-piece register. Also made in one-piece type, No. 160.



No. 255, the original special cold air face and still the best. Furnished in medium shade of oak best suited to all oak floors.

# HART & COOLEY REGISTERS

**—THE AIR CAPACITY LINE—**

**MADE BY HART & COOLEY MFG. CO.**

**CHICAGO—61 W. Kinzie St.** **NEW BRITAIN, CONN.—Corbin Ave.**

Philadelphia, 1600 Arch Street—New York, 101 Park Avenue—Boston, 75 Portland Street—Nashua, New Hampshire

Factories at Holland, Mich—New Britain, Conn.—Nashua, N. H.

— ALSO A COMPLETE LINE OF FURNACE REGULATORS, CHAIN, PULLEYS, DAMPERS, ETC. —

# 1. Cleaning profits
# 2. Repair profits
# 3. Alteration and new installation profits.

When you do furnace cleaning you get more business—

LIGHT
*Easy to handle*
POWERFUL
*Cleans efficiently*

*start now with this cleaner*

# BRILLION
## FURNACE CLEANER

ONCE you get in the basement you are on the spot to see what your customer needs—if he does not need a new furnace this season you know just about when he will need one. He may not know what condition his furnace is in but when you ***clean it*** you find out and it is easy to show the owner what repairs are needed. Not only that but you can talk about heat regulators, fans, blowers, humidifiers, etc. You can sell him extras and ***keep him sold*** on modern warm air heating.

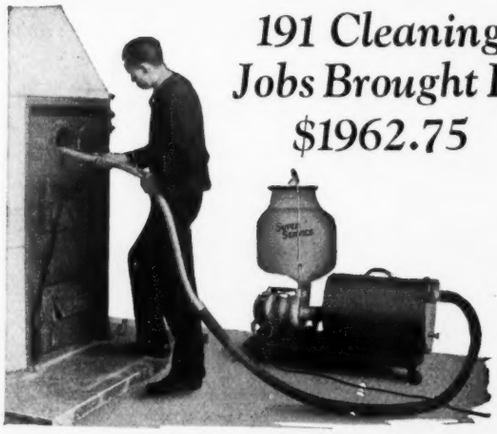
Many dealers do furnace cleaning at cost just to get this valuable contact—***but cleaning profits*** are worth while especially with the Brillion as it costs you very little. Write for full details of construction and prices. Use the coupon.

**BRILLION FURNACE COMPANY**
**200-300 Park Ave. Brillion, Wis.**
***Chicago Office: 3715 Elston Ave.***

BRILLION FURNACE CO. a.a.
Brillion, Wis.
I am interested in going after warm air heating business by using furnace cleaning as my entry. Tell me all about the Brillion Furnace Cleaner.

Name.....
Address.....
City..... State.....





# *191 Cleaning Jobs Brought In $1962.75*

*Our one-man outfit makes low overhead*

FT. WAYNE Service and Specialty Co., Ft. Wayne, Ind., reports that their first 191 furnace cleaning jobs with their Super Suction Cleaner averaged, gross, $10.25 each, for cleaning alone.

Seventy-two per cent of these jobs needed repairs—think of 137 repair jobs. They increased the total takings nicely. Furnace cleaning pays—pays well—and repairs add much good velvet.

***Write today for our Plan Book—it's free. The Ft. Wayne folks say it helped them a lot.***

**THE NATIONAL SUPER SERVICE CO.**
**1944 North 13th Street Toledo, Ohio**

# *Just the Picture of Health*

## There Is LOTS of Business

IF you sell HEALTH and HUMIDITY as delivered by the AUTOMATIC DRIP HUMIDIFIER. They helped one dealer sell Forty-One Oil Burners in April, over $25,000.00 worth.

Plenty of people have the money for good things, of value.

Sell the best and make a PROFIT. You can get more orders now than later. Be an outstanding distributor in your community. Sell MANUFACTURED WEATHER, with a Humidifier that can control the moisture, and that does not need servicing.

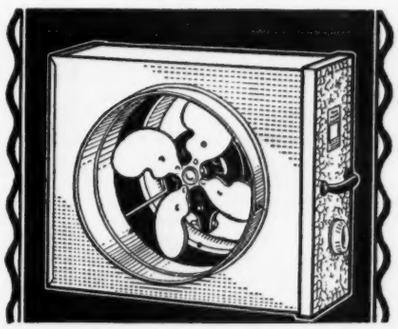
Our pan is not kept full of water like the rest. It is different so the Humidity can be regulated. With this Humidifier the customer can have Humidity to suit himself.

***Write today for literature***

**AUTOMATIC HUMIDIFIER COMPANY**
**CEDAR FALLS, IOWA**

# For summer cooling as well as winter heating— sell your prospects the mighty—

**A-C** Thermostatically Controlled
*Automatic* **HEAT BOOSTER**



*1—Automatic Operation;*
*2—Perfect Circulation;*
*3—Simple—Trouble Free;*
*4—Quiet—No Vibration;*
*5—Costs less than any other similar fan—*

No. 9 size Unit with 10 inch Outlets, designed for average small home—Mercury Control, Heat Booster, Fan and Unit—all ready to install ***complete*** including Automatic Control to the dealer— **36.00**

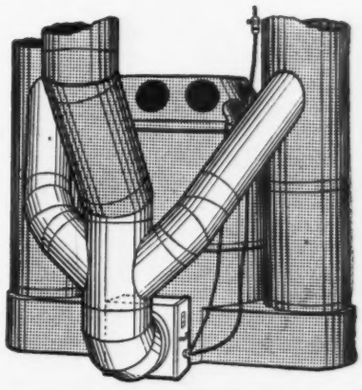
No. 12 with 12" fan and 14" openings, $48.00.

REMEMBER most folks haven't even heard of a furnace fan not to say anything about having seen one in operation. Show the A-C now—it is unusually powerful.

It is easy to install, too, and simple in construction, making it fool proof. The automatic control feature puts it way ahead of others. It is made in several sizes and it can be installed in all types of jobs.

Make big profits now by giving your customers this added feature at a low price.

***Order from your Jobber or write direct for full details***



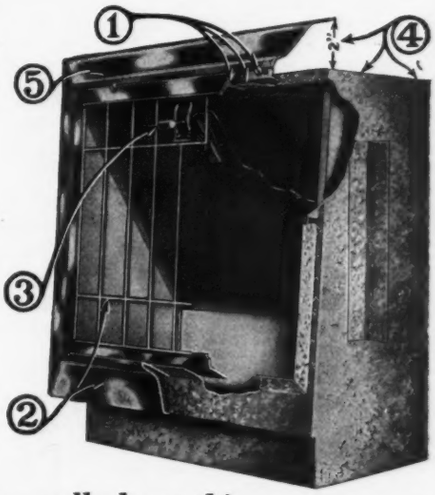
**A-C MANUFACTURING COMPANY**
**417 Sherman Street** **Pontiac, Illinois**

# Just suggest

NO STREAK

# REGISTERS

*for both old and new installations and watch your sales and profits grow*




THE cleanliness feature of the NO STREAK register puts it in greater demand now than ever before. Its patented construction ***absolutely prevents streaking of wall above the register*** and folks want this assurance of cleanliness.

It has other features too—attractive modern finishes—durable construction—neatness of design and full free air capacity.

Remember this tip to extra profits—wherever you see streaks on walls above the registers suggest NO STREAK REGISTERS.

***The OUT-O-WALL is another register that is different and better—tell us to tell you about it.***

***Learn all about this better register— Send the coupon today***

**Rock Island Register Co. Rock Island, Ill.**

Send me your catalog and price list today.

*Name*.....

*Street and Number*.....

*Town*..... *State*.....

**ROCK ISLAND REGISTER COMPANY**
**ROCK ISLAND, ILLINOIS**

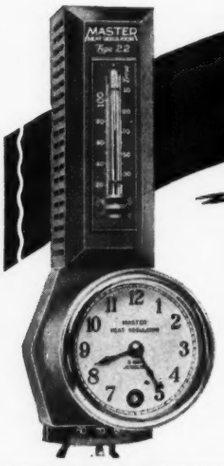
BEST IN THE WORLD

"CHAMPION" Miters will outlast the Eaves Trough. Galvanized after formation. Complete line of sizes and gauges.

For sale by all Jobbers.

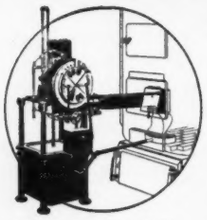
Champion PRODUCTS

BRADEN MANUFACTURING CO.
TERRE HAUTE ~ INDIANA




MASTER HEAT REGULATOR
Type 22
FULL ELECTRIC
No Daily Attention
8-Day Jewelled Clock
Close Regulation—1° or Less
Clock Model, $80. Plain Model, $55
*Write for Details and Dealer's Discounts*
WHITE MFG. CO.
2362 University Ave., St. Paul, Minn.

Balanced Heat



*The McIlvaine Method of Oil Heating*

With the fidelity of a well-balanced scale, the amount of heat supplied by the McIlvaine Method automatically increases or decreases exactly as the temperature outside demands. Thus, an even temperature is maintained indoors, all winter long. The McIlvaine Continuous Flame Oil Burner (recommended by the leading warm air heating experts) with its five flame sizes, automatically balanced to the heat demand, gives positively satisfactory results, and is highly efficient when installed in warm air and other types of residence heating systems.

Listed as Standard by Underwriters
Approved by New York Board of Standards and Appeals

WRITE NOW
for dealer's proposition, sales plan and complete information.

McILVAINE BURNER CORPORATION
747 Custer Avenue Dept. A Evanston, Ill.

TWO TAYLOR'S BRANDS

*to Tie to*

**First in the minds of sheet metal men is our famous HAND MADE roofing tin—the highest quality, longest lived roofing tin in the world, the old "TAYLOR'S" Old Style, known since 1905 by the new name.**

*Target and Arrow* ROOFING TIN

Now we have gotten out a New Tin, but the best machine made plate ever produced, for those who want to pay less. This is known as

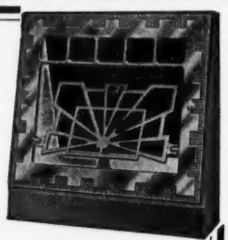
**Taylor's Extra Coated**
**40 lb. Copper Bearing O. H.**

**Ample stocks carried by all distributors. Ask them for TAYLOR'S.**

N. & G. TAYLOR COMPANY
CUMBERLAND, MARYLAND
*Headquarters for Good Roofing Tin Since 1810*

LAMSON & SESSIONS CO.
CLEVELAND, OHIO
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham

**Our customers tell us that this register doesn't streak the walls and that it is quickly installed.**



*ALL THIS AND MORE, AT NO GREATER COST*

*"It's different from all the rest"*

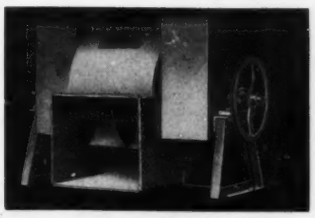
SYMONDS REGISTER COMPANY
3117-23 Minnesota Ave. St. Louis, Mo.

*Say you saw it in AMERICAN ARTISAN—Thank you!*

**Furblo** *The Furnace Blower Everyone Recommends*

MANUFACTURERS have adopted FURBLO as standard equipment — jobbers catalog FURBLO exclusively —dealers everywhere find FURBLO the one and only satisfactory solution to the problem of mechanical warm air heating.

FURBLO is not a fan—but a blower. Quiet, efficient, powerful, sturdy, dependable. Guaranteed to always produce on even the hardest job.



Two sizes fit practically all installations. Send for complete information.

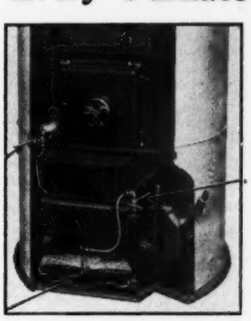
**Lakeside Company**
Dept. AA6 Hermansville, Mich.
*Makers of Lakeside Ventilating Equipment*

*only* $48 *installed*
**dealer price $22.75**

"Sheer Comfort" Heat Regulator is all electric—yet it costs less and gives four exclusive safety features found in no other heat regulator at any price. No batteries, nothing to wind or oil. Easy to install. Ask your jobber or write, H. M. Sheer Co., 213 Hampshire St., Quincy, Ill.

**SHEER COMFORT** *heat Regulator*

**Every Furnace User Wants One**
**FURNACE DUST ELIMINATOR**



MAKE a hit with your customers —include this patented feature on every new installation—costs little but makes the job of removing ashes a clean, easy task.

It prevents dust from spreading throughout the home—saves grates and fuel.

Fine nozzle spray settles the dust. A turn of the control valve before shaking or removing ashes does the trick. High quality throughout—easily attached.

*Get full details and prices today —make extra profits this season.*

**DUSTLESS ASH COMPANY**
MUSKEGON, MICHIGAN

**Let's tackle that difficult warm air job together—**

NOBODY knows everything and progress comes only by studying conditions.

Perhaps you have a customer who still insists that the warm air installation you or someone else put in is not working right.

If you have failed to find the reason send the plans and all data you have on the job to AMERICAN ARTISAN. The problem and plans will be published and expert warm air heating engineers will offer their solutions.

**Sell positive warm or cool air delivery with the . . .**

AM-PE'-CO
**ROTARY BLOWER**

WITH the Am-Pe'-Co Rotary Blower you can safely assure heat distribution and uniform, positive delivery of air to every room.

**Especially Designed for Warm Air Heating Systems**

The AM-PE'-CO is a blower designed for more efficient heating—it is the *only blower* that has a fully balanced distribution to both inlets. Notice the air space back of the scroll or blower housing which provides increased and better distribution of air, actually increasing capacity of the blower. This air chamber permits unrestricted entry of free air from top, side and bottom of inlets.

**Go After Sales Now**

Because the AM-PE'-CO is a *positive* blower you can sell and install it *now* with a guarantee that it will aid in cooling the home this summer.

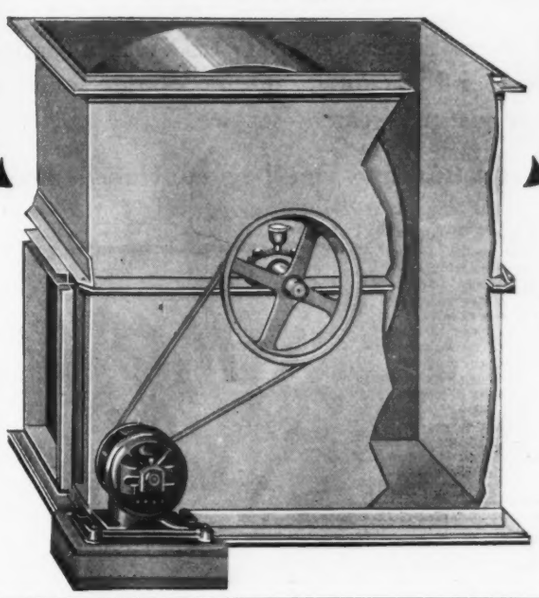
**Silent—Compact—Low Priced**

The AM-PE'-CO is quiet—almost noiseless—it is compact and easy to install and because of air chamber in rear air may be taken from top, rear or bottom.

You can make better profits using this better blower. It is priced for popular quality appeal. It is made by a Company thoroughly experienced in making precision products.

*Write today for full details and prices*

**AMERICAN MACHINE PRODUCTS CO.**
MARSHALLTOWN, IOWA



# ARMCO INGOT IRON

## cuts your customers' rust-bills and brings greater profits

**WHEN you install an Armco INGOT IRON job, you gain another satisfied customer. Your work endures and saves him money. The customer is pleased, recommends your shop to his friends, and the way is paved for more jobs and bigger profits.**

**There are other advantages, too. Armco INGOT IRON is uniformly pure, easy to work, possesses a tightly-adherent galvanized coating. Such operations as crimping and double seaming are done quickly and surely, with little or no cracking or flaking of the coating.**

**And then, Armco INGOT IRON is a nationally advertised sheet metal. It is known and accepted among people everywhere as the dependable metal of lowest cost per year of service.**

**Give it a trial and you'll be convinced like thousands of other contractors.**

This is the familiar symbol that identifies Armco INGOT IRON sheets and formed products. It stands for the skill and experience of Armco—a company that has pioneered and specialized in the manufacture of high-grade special analysis iron and steel sheets for nearly thirty years. Always point out this triangle to your customers, so that they may know they are getting long-lasting, low-cost sheet metal.

ARMCO

**THE AMERICAN ROLLING MILL COMPANY**
**Executive Offices, Middletown, Ohio**

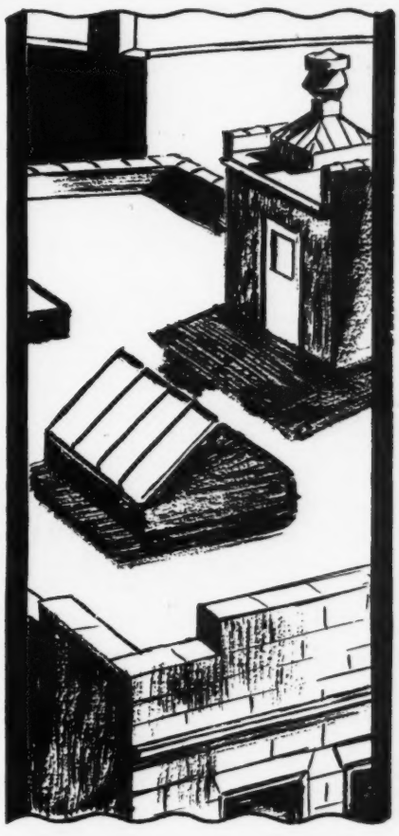
**Export: The ARMCO International Corporation**

DISTRICT OFFICES: Chicago, Cincinnati, Cleveland, Detroit, New York, Philadelphia, Pittsburgh, St. Louis, San Francisco

**"BE SURE IT'S MADE OF ARMCO INGOT IRON"**

*Say you saw it in AMERICAN ARTISAN—Thank you!*

# TONCAN



## TONCAN will keep business on your books!

USE TONCAN for ventilator, downspouting, cornice, piping, roofing and you *know* your customer will be satisfied! For Toncan resists the ravages of moisture, of fire, of lightning and of time as no other ferrous metal will.

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# American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

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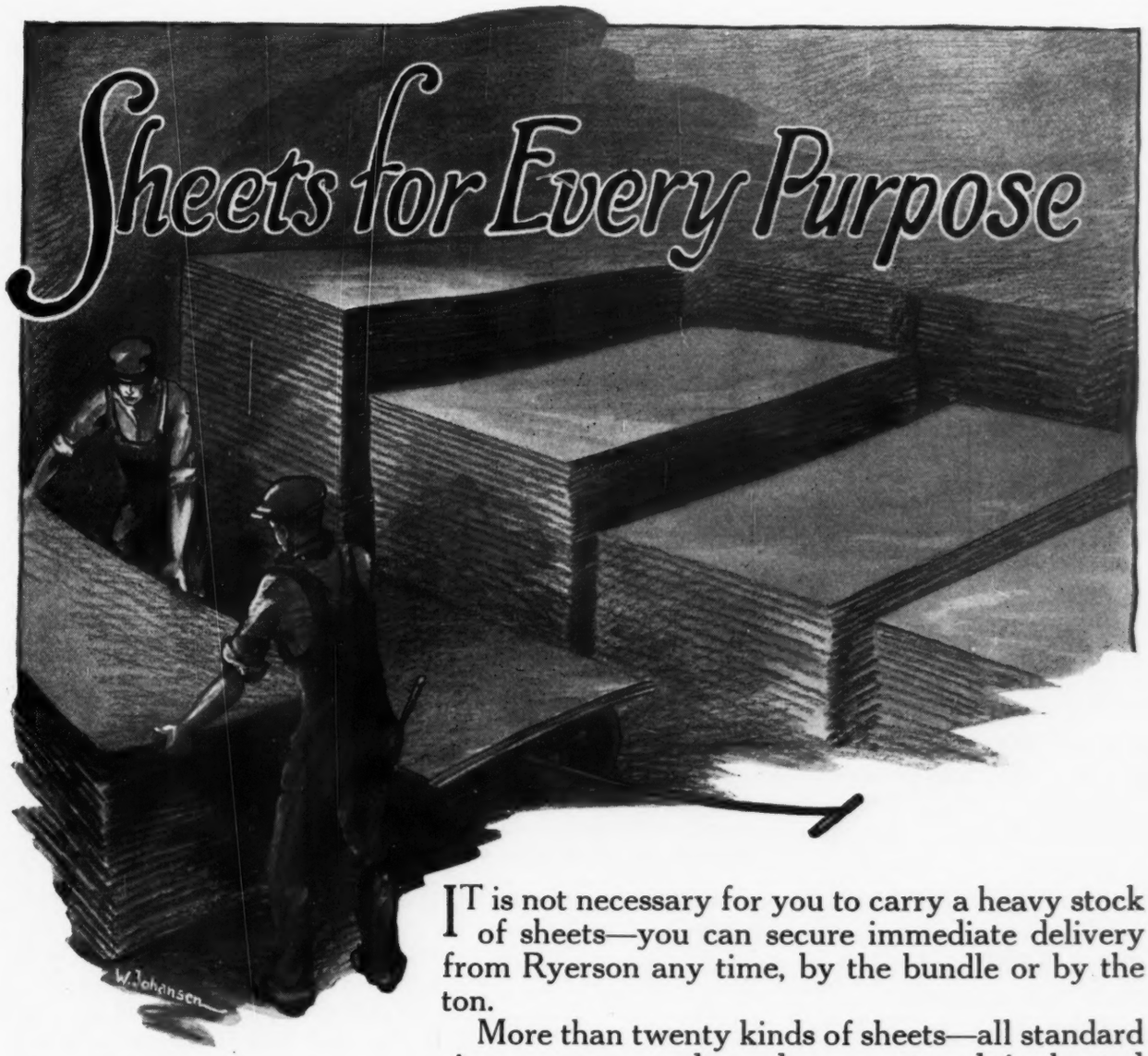


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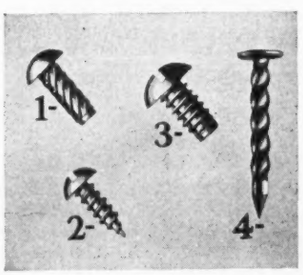


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American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

Vol. 99 CHICAGO, JUNE 21, 1930 No. 13

# Patent Medicine Minded

WE do not wish to take credit for the above pithy title. We heard it at the National Sheet Metal Contractors convention where L. I. MacQueen, whose address is reported in the convention proceedings, used the phrase, but credited it to Glen Frank.

We want to use this editorial page to broadcast some of the points brought out in his speech. You can credit him for the ideas.

Glen Frank said we are a nation patent medicine minded. We wonder if there isn't a world of truth in that statement. Particularly in the sheet metal and warm air heating fields.

What does he mean by that term? It seems to us that as applied to our own industries he must mean that we are continually looking for some **easy,** some **cheap,** some **effortless** ways and means for remedying our troubles.

We pass hundreds of resolutions, we waste thousands of words on our troubles, we appoint committees—of the **other** fellows—to see what can be done about the situation.

But we don't do much else about it.

This situation, according to Mr. Frank, has come to pass because we are a nation of economic **illiterates.** We don't think beyond the end of our nose. We all want to make a profit—a substantial profit—**but we don't want the other fellow to make his profit.**

As a matter of fact we can in one minute think up more ways and means of keeping the other fellow from making a profit than we can think up in two weeks of making **our** profit and letting him get **his.**

We don't seem to care whether the other fellow is a competitor or just another business man in our community. If we get our profit and keep him from getting his we feel we are shrewd business men.

What we don't seem to realize is that just as long as that other fellow is not making any money just that long is he absolutely unable to **buy our** services or our goods.

Let's let the other fellow make a profit and see if that won't pull business out of this slump.

Here is another point which deserves publicity.

Mr. MacQueen said that the quickest way to remove present troubles is to **tighten up on credit.**

He cited the case of a sheet metal jobber. This jobber had several accounts which were divided into two kinds. First there was the contractor who discounted his bills. He paid cash for his materials and ran his business on just that basis.

The other kind was the contractor who demands six and twelve months to pay up. The jobber did not discontinue selling the poor-pay contractor. What he did do was to **use the money paid by the good contractor to carry the account of the poor-pay contractor.**

That situation is going on right in **your** community today.

Just as soon as the jobbers are forced to make every contractor pay his bills promptly the poor-pay contractor will be out of business and the good business men will be able to conduct business on a sound foundation.

And let's not forget that the poor-pay contractor is in most cases the contractor who does not understand what overhead is, he does not know how much it is costing him to do business and as a result his bids are always too low. This is bound to hammer down the general level of prices contractors can get for sheet metal or furnace contracts.

Here is a real job for our local associations. They have been pounding on overhead for some years, but so far progress has been discouraging. But with the type of men we have in our warm air heating and sheet metal contracting industries, we surely can find enough stamina to put the job across.

No one can deny that the quicker every man operating in these two fields understands what it costs him to do business just that quick will see more profitable work coming into our shops. No man **tries** to lose money.

We have been trying to do our share by running a series of articles on cost accounting and by publishing every bit of material on this subject we can get hold of. Let's all get going on this subject.

# ESTIMATES

## How Close Do Yours Come to Actual Costs?

**By JOSEPH G. DINGLE**

***An address given before the Illinois Sheet Metal Contractors' Association***

HERE I am again. This is my fourth appearance before your convention, and if you feel that you have had enough of me, please do not shoot me. I was invited to come each time, and I do hope that I have left your convention each time a little better posted on the value of good records. I have talked to you about several phases of your work, have used comparative figures, taken from better than representative shops, and this year I want to talk to you about a matter I have not yet touched on. I do hope I can give you something worth thinking about.

In earlier talks I have stressed the fact that your ranks are recruited from your workmen. You were a sheet metal worker in the other fellow's shops some years ago, and now own your own shop. Your workmen of today will be the sheet metal contractors of tomorrow. As a workman at the trade you learned the art of applying sheet metal; the mysteries of warm air heating and the proper method of installing furnaces. Without special preparation for the executive duties—estimating, selling, collections, financing, etc.—you budded forth as a sheet metal contractor, and, like your fellows in the industry, have made mistakes and paid for them. You are still making mistakes, and for some of you, when you have paid for your mistakes, you will be out of business—broke. You will again be workmen for the more successful—or shall I say lucky?—employers. You have not yet learned the rules of successful business. Your executive ability is, in many instances, below par. You are not making the profit you are entitled to and by low bidding are keeping your competitors from getting fair prices for their work.

This brings to mind a story I heard over the radio the other night. A fellow was arrested for speeding. The cop bawled him out good and proper. Thinking to get off easier, this bird said, "I'm a college boy." The cop said, "Ignorance is no excuse. Here's your ticket."

**Joseph G. Dingle, C. P. A.**

Ignorance is no excuse for a business man. He should know his costs of doing business.

The AMERICAN ARTISAN has arranged with me for a series of articles dealing with the problems of accounting as related to the sheet metal and warm air furnace business. This series is intended to take the readers of that journal along, step by step, from the beginning of the sheet metal shop to the end where one who has followed these articles closely will be able to keep a fair set of books—having the forms, accounts, and other mechanical parts of the bookkeeping explained in more or less detail. How many of you fellows have been reading these articles in the ARTISAN? Do you find them interesting and instructive? Am I making clear the points I am trying to bring home to you? I am going to take up here a phase of your business not yet covered in my articles in the ARTISAN, and one which will not be given in complete detail in that magazine.

I want to talk to you about estimating jobs. Yes, I know you know more about estimating than I do. You ought to, for you have been doing it for some years. You know how much material it takes for a certain piece of work and about how much labor is required to install that furnace. But I want to talk to you about a matter where you are falling down. I want to ask you, HOW CLOSE DO YOUR ESTIMATES COME TO YOUR ACTUAL COSTS? Do you know the answer to that question? I think not. I have had a peep into the records of several sheet metal books, and they were above the average, but they did not show what I expected to find. The estimate was for pricing a bid ONLY, and no effort was made to check up on the results after the job was completed to see where you fell down.

In the army and navy, where big guns are used, their firing is by indirect aim. The navy fires at a target which is out of sight of the gunners. They know the direction in which the target lies, and the approximate distance from the gun.

**If your estimates are not based on actual costs, you are shooting blindly. Make your cost records serve as observers, then your shots will all hit the target**

They also know that for a certain yardage they must allow for drift, due to the rotation of the projectile during its flight. They know that they must make due allowance for wind interference; for fall, and also for the time of flight of the projectile. After making all these allowances, they would not be able to hit the target were it not for the observers who are close enough to the target to see it, and these observers observe the splash of the projectile and report back to the gunners the correction necessary in order that they may land on the target. They are overshooting or undershooting. They are ahead or behind the target. Upon report from the observer the gunners make a correction in their elevation.

In the same manner, the sheet metal contractor lays out his bid. He knows the location, the nature of the work, and generally can obtain full details. He also knows, in a general way, that certain materials and certain labor costs will prevail. He knows, or should know, that his overhead is about so much. He then proceeds to take a shot at the job. That's what the gunners do. But, unlike the gunners, the sheet metal contractor does not have an observer out there on the job to report how far he missed the target. The cost may have fallen way short. Like the first projectile fired, it is a loss. Unlike the gunner, however, the business man does not correct his sights before shooting again. He still fires blindly, believing that what he don't see don't miss the spot.

Through the kindness and ability of one of your livest members, I have available some very fine figures—in considerable detail. This man used observers to observe the splash of his projectiles, and knows what he aimed for and how he missed the target. This sheet metal contractor states that his method of pricing jobs is as follows: Selling price is 100 per cent. Cost of doing business is 18 per cent. Profit desired, 20 per cent. He states that in estimating he takes the estimated cost of his material and labor and divides by .62 to get his selling price. This 62 per cent, plus overhead of 18 per cent and profits of 20 per cent equals the 100 per cent.

Now let's figure a job with this sheet metal contractor and see how we come out. For convenience in comparison with the actual results obtained during 1929, I am going to estimate this job as having a material cost of $35.47 and a labor cost of $20.88, of a total prime cost of $56.35. Known:

| | |
|---|---|
| Materials cost of | $35.47 |
| Labor cost of | 20.88 |
| Total prime cost | $56.35 |

To arrive at the selling price, we divide $56.35 by .62 per cent and find that we will have to quote a price of $90.89. We make our bid and land the order. We are now ready to proceed with the work, and let us assume the unusual—that our costs for material and labor are exactly as estimated. We find our books will disclose the transaction as follows:

| | | | |
|---|---|---|---|
| Sales | | $90.89 | 100.00% |
| Materials | $35.47 | | 39.02 |
| Labor | 20.88 | | 22.97 |
| Total prime cost (material and labor) | | 56.35 | 61.99 |
| Gross profit | | 34.54 | 38.01 |
| Overhead (18 per cent of $90.89) | | 16.36 | 18.00 |
| Net profit | | $18.18 | 20.01% |

You will say that these figures prove the point—that this sheet metal contractor knows how to figure, and gets his profit. The figures as used do tend to prove that point, but here is where the joker comes into the picture. I have *assumed* that his estimated costs for material and labor were exactly his actual costs. I know you will agree with me that this is not always the case—the art of estimating is not that perfect. There is a further point to be considered and that is the 18 per cent allowance for overhead. He estimated that his overhead was 18 per cent; therefore, in compiling my figures, I used that figure. Just what his overhead actually was is another matter. I will give you his actual results in a few minutes, but here let me say that his overhead was not 18 per cent, but 22.63 per cent—a greater figure by 4.63 per cent.

Now let's take a look at his actual results for the year 1929. His books disclose that during the year just closed, and on the same basis he used in estimating, his sales were 100 per cent. We find:

| | | |
|---|---|---|
| Sales | | 100.00% |
| Materials | 35.47% | |
| Labor | 20.88 | |
| Total prime costs | | 56.35 |
| Gross profit | | 43.65 |
| Overhead | | 22.63 |
| Profit | | 21.02% |

The net results obtained are really better than he estimated. Where he used a figure of 62 per cent for his costs of material and labor, he actually got by with a cost of 56.35 per cent. Where he estimated his overhead at 18 per cent, it actually cost him 22.63 per cent; and while attempting to make a profit of 20 per cent, he actually made 21.02 per cent. You will say he did very well indeed. He did. But he did not accomplish the results he aimed for. He overestimated his material and labor costs, and underestimated his overhead. On the former he was high by 5.65 per cent and on the overhead he was low by 4.63 per cent, but in the end he obtained 1.02 per cent more profit, through his good fortune.

Now, if this sheet metal contractor wishes to duplicate his 1929 results in 1930, he should change his basis of figuring from the 62 per cent to 56.35 per cent, and his computation would be, on the job estimated above, somewhat like this:

| | | |
|---|---|---|
| Material costs | $35.47 | |
| Labor costs | 20.88 | |
| Total prime costs | $56.35 | |
| Dividing by 56.35 per cent, we get a sale price of | | $100.00 |
| Now: | | |
| Material will cost | $35.47 | |
| Labor will cost | 20.88 | |
| Total prime cost | | 56.35 |
| Gross profit | | $ 43.65 |
| Overhead should be | | 22.63 |
| Net profit should be | | $ 21.02 |

From these figures there are several lessons we might learn—

FIRST: That while these figures are taken from an actual business, and represent the results obtained for the year 1929, that is no reason why you can use them in your business. You may, or may not, know what your overhead is. I venture the statement that not more than a dozen of you know what your actual overhead was for 1929. There is nothing more dangerous than for a sheet metal contractor, because one of his fellows has an overhead of 22.63 per cent for 1929, to assume that he will be safe in using that figure in his own business.

SECOND: That while these figures are actual operating results for this particular shop for 1929, it does not follow that they will be applicable to his 1930 business. His sales may increase or decrease, without a corresponding change in his overhead costs, thereby upsetting his percentages materially. Constant study of actual operating figures during the year are necessary in order that his well informed sheet metal contractor may carefully and intelligently chart his business affairs during 1930. He must watch his volume of sales, in order that he may know its relation to last year.

He must also watch closely his expenses (overhead) in order that he might increase his percentage allowance for that item if he finds expenses increasing faster than do his sales. If he finds that sales are increasing faster than are his overhead expenses, he will, naturally, make more money. But should his expenses increase and his sales decrease, he must promptly change his basis for figuring in order that he may not actually lose money during the year. Or, better still, if he finds his expenses increasing and his sales falling off, he should put forth more effort to bring his sales volume up to the required profit-making point.

In this his sales should, roughly, be slightly less than five times his

expense total. Expenses for 1929 amounted to $22.63 per $100 of sales. By frequent tests, this sheet metal contractor can keep his bearings. The vessel plying the ocean takes readings every day—shoots the sun—in order that the course of the vessel might be kept closely within the traffic lane it desires to follow; and for the same reason, the business man should shoot the sun—check his operations—in order that he might know before it is too late just what traffic or profit lane his business is following. It is what he is doing—not what he thinks he is doing—that will cause him to show a profit at the close of the year.

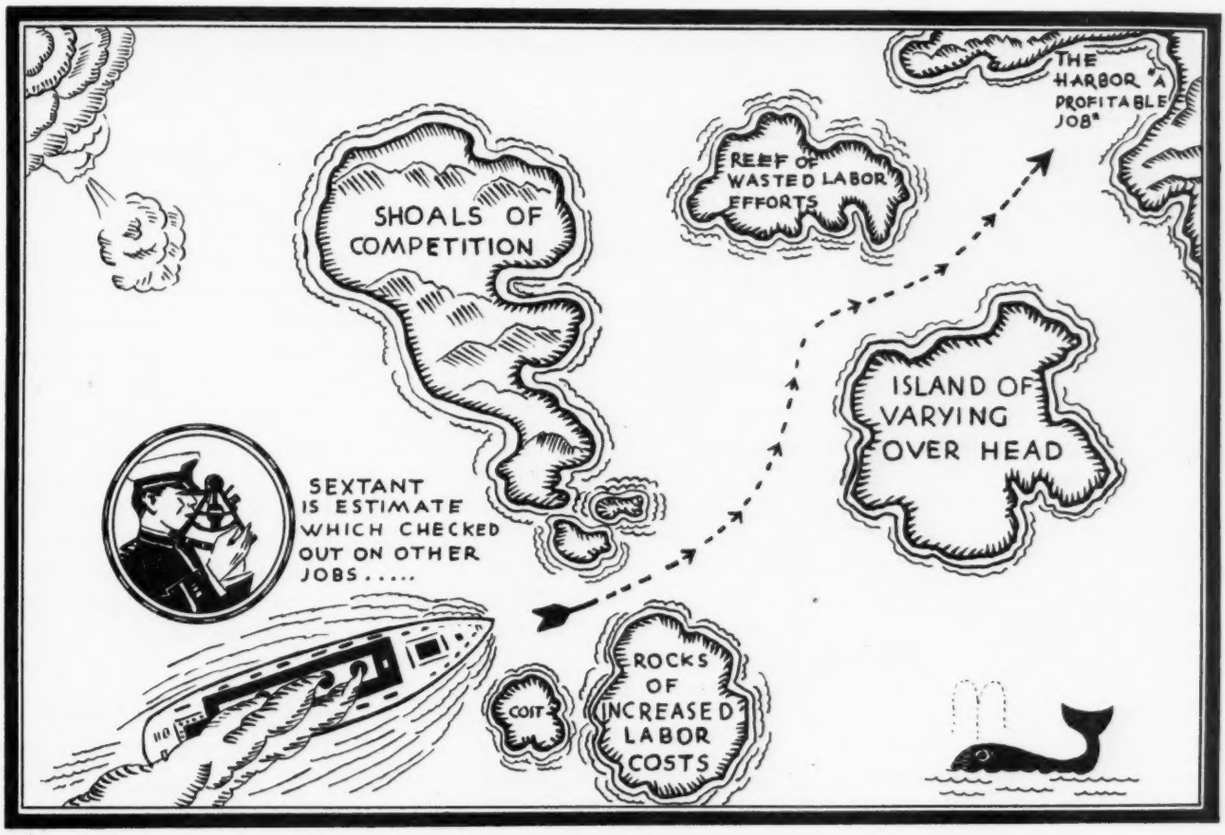
I have seen the price list your association has prepared. I wish to compliment you on your step in the right direction. There is, however, one danger in this price list. I am sure you realize that while this list gives you a general basis from which to work, not one of you will be able to fit this price list to your own business intelligently without first making a careful survey of your operating results, and testing at frequent intervals the discounts your business can allow from this standard list.

I venture the remark that there will be no two shops which can use the same discount in all instances. The value of this price list largely depends upon the ability of the individuals using it to adapt it to their own business by intelligent use of their own operating results in prior years, and the ability to instantly realize the necessity for correction of discounts upon changes in conditions in their own shops. In order to best accomplish this, it is going to be necessary that each individual know more about his business than he has in the past. Our good friend whose figures are used in this talk is in a position to more accurately use this price list than most of you fellows. He knows very closely his material and labor costs, and knows also his overhead cost.

The problem before most of you is, therefore, do you use your estimates after you have landed the job? I am afraid most of you do not. In my opinion, there is where you should begin to use that information you have compiled concerning the cost of the work you are about to do. you prepared the estimate from your knowledge of the requirements of the work and it should be your desire to determine as nearly as possible how close your estimate came to being the true cost of the job.

Let's say you estimated the material to cost $100. It is not good business for you to know, upon completion of that job whether the material cost was $100 or $150, or even $75. You can get this information very easily, if your work is properly laid out on paper. As material goes to that job, charge it against that job. Follow as nearly as possible the estimate in building up your cost data for the job. If you have estimated your material in groups, show what items are in-

*(Continued on page 41)*


THE HARBOR "A PROFITABLE JOB"
REEF OF WASTED LABOR EFFORTS
SHOALS OF COMPETITION
ISLAND OF VARYING OVER HEAD
SEXTANT IS ESTIMATE WHICH CHECKED OUT ON OTHER JOBS.....
COST
ROCKS OF INCREASED LABOR COSTS

**Your business course is like the course of a ship—beset with dangers. If your course is charted by accurate cost records you will reach the harbor of profitable business without a wreck**

# National Sheet Metal Convention Reports Year's Progress and Indicates Future's Possibilities

OF the many conventions held this year in the fields of warm air heating and sheet metal contracting, no one meeting has had the sustained excellence which marked the twenty-sixth annual convention of the National Association of Sheet Metal Contractors. The meeting was marked by a diversified program of high order. The speakers were outstanding men in their fields and the attendance was both good and attentive.

George I. Ray

The officers elected for the coming year are: George I. Ray, Charlotte, N. C, president; H. Stanyer, Dallas, Texas, first vice-president; M. F Liebermann, Ambridge, Pa., second vice-president; George C. Clark, Chicago, Ill., third vice-president; George F. Carraher, St. Louis, fourth vice-president; Joseph C. Gardner, Indianapolis, Ind., treasurer; Andrew Zahner, Kansas City; Paul L. Biersach, Milwaukee; W. A Fingles, Baltimore, trustees; A. B. Rysdon, Chicago, Ill., sergeant at arms. The 1931 meeting will be held in Chicago.

### Tuesday Morning Session

A few committees met Monday morning to discuss some of the important features to be taken up in the meeting. The real program, however, did not get under way until Tuesday morning, when the assembled delegates and visitors were welcomed to Pittsburgh by Louis Luckhardt, who extended the best wishes of the Pittsburgh association, and John Herron, President of the City Council, who extended the facilities of the city to the convention.

J. E. Merrick, National President, responded to the greetings.

The first official business of the meeting was the appointing of committees. The following were appointed:

Credentials—A. B Limbach, W. H. Scholes.

Auditing—O. E. Hutchinson, John A. Pierpoint, H. Stanyer.

Resolutions—E. B. Langenberg, Joseph C. Gardner, B. Kolbenschlag.

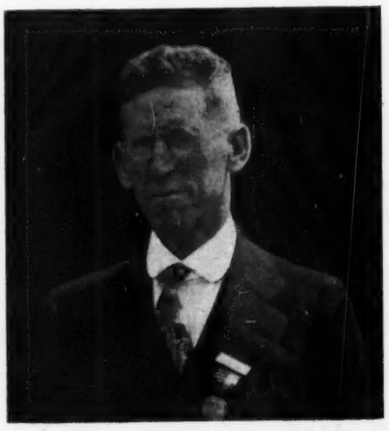
Nominations—O. E. Hutchinson, H. C. Hartline, W. G. Schwartz, W. A. Fingles, George Harms.

Following the appointing of the officers, President Merrick delivered his report for the year's activities. This report will be published in another issue of AMERICAN ARTISAN.

### Treasurer's Report

National Treasurer Joseph C. Gardner then read his financial report. His report was supplemented by Secretary Markle, who read the auditor's report for the fiscal year.

The net worth of the association, according to this report, was $14,-167.21. The Secretary's receipts were shown to be $8,414.76, and total liabilities $25,565. At the date of the meeting, 2,508 Standard Practice in Sheet Metal Work



J. E. Merrick

books had been sold with about 2,400 copies still awaiting sale.

The total cost of getting out the book was shown to be $53,000. The audit showed that the assets including good will, plates and copyright on the book and all other incidentals were $38,298.33.

According to the Treasurer, the national association received $12,-220.41 and spent $11,752.76, leaving a balance of $467.65. Total receipts including payments on the book were $29,149.91 and expenditures were $28,517.38, leaving a balance of $632.53.

### Tuesday Afternoon Session

An expected report from the Uniform Mechanics Lien Law committee was held over as the committee was not able to report.

A. J. Wagner, chairman of the

Allied Construction Industries committee, reported that from a single organization in Detroit, this movement has spread until today 41 cities are operating under some form of credit extension.

The committee recommended that shopping for bids by general contractors should be condemned as unfair practice. Thirty-four rules of fair practice have been approved and adopted and these rules were put into such form that they are now ready for submission to the Federal Trade Commission. Motion to submit them was approved.

At the conclusion of the report of this committee, D. M. Strickland, manager of the Development Section, Sales Department of the American Rolling Mill Company, delivered a very stirring address, "Your Future Business." This address was printed in full in the March 4 issue of AMERICAN ARTISAN, following its delivery at the Ohio convention.

The report of the Vocational Education committee was given by Louis Luckhardt, chairman. He cited the work of the sheet metal department of Carnegie Institute and stated that a more detailed explanation of the work here would be given by the director.

### Bringing Up Reserves in Industry

Arthur C. Jewett, Director, College of Industries, Carnegie, speaking on the subject of reserves, said, "Any industry can commit suicide by neglecting to train replacements for artisans who step out each year from old age, disability, etc."

"Competition today," Mr. Jewett said, "is between industries rather than between operators in any industry. The future of the sheet metal industry will lie in the type of apprentice now being trained. These new men will have to be better trained than ever before; they will have to be quicker to grasp new ideas, to translate the ideas of architects and designers into terms of sheet metal and above all they must be willing to take new ideas and make them useful.

"We ought to be training our sons to follow in our steps. In Pittsburgh some 50 or 60 young sons are now being trained, but that number is far too small. We should see that they are given a background of mathematics so that they can understand bookkeeping, accounting, cost work; they should know something about economics so that they can translate conditions into terms of our own business; they should know something about the sciences

W. C. Markle

so that they can be of service to the architect and the engineer."

### Triple Play in Business

This was the text of an address by L. I. MacQueen, Executive Manager, Credit Association of Western Pennsylvania.

"One of the catch phrases of business today," said Mr. MacQueen, "is, 'Eliminate the Middleman.' But every business man ought to realize that this can't be done. Even the chain stores who have made so much of this phrase do not eliminate the middleman. They must have warehouses, delivery trucks, help, just as any wholesaler does. Their trucks wear out just as quickly, their overhead is just as high, but the customer is paying the manufacturer rather than the wholesaler. It's all the same thing.

"Equally important is the fact that there seems to be a decided movement to eliminate the other fellow's profit. This, too, can't be done. Every time one man loses his profit it reduces your chance to sell your commodity or your service.

Perhaps the most striking part of Mr. MacQueen's address was that part relating to credit. The gist of the statement was:

"Wholesalers have been too lenient with the dealers."

To back up this argument he said, "When any jobber allows a dealer six months to a year credit he is using the money the dealer who pays promptly sends in to finance the operations of the slow-pay dealer. And worse yet, the slow-pay dealer is usually the dealer who breaks every rule of ethics and who is the worst competition in the heating or sheet metal business.

"The sooner jobbers tighten up on their credit and make the poor-pay dealer meet his bills C. O. D. the sooner the greatest evil will be removed from your business. Perhaps the jobbers will have to be forced to make such arrangements."

### Wednesday Session

The Wednesday morning session was devoted to warm air heating. E. H. Riesmeyer, Chairman of the Warm Air Furnace committee, reported that there was evidence of a decided trend to adopt air conditioning and warm air heating in homes. The committee suggested that furnace installers should give more attention to selling air conditioning jobs and less thought to getting the small competitive jobs in which there is no profit.

This committee report was followed by an address by I. L. Jones, Chairman of the Better Business Committee of the National Warm Air Heating Association on the relationship of the two associations.

He explained the investigations which have been carried on at the University of Illinois and gave some details of the association's activities.

Details of the operation and organization of the association's national office and the work done on the Standard Code were explained.

Of much interest to the listeners was the explanation of the work of the Better Business Committee with special reference to the work of Jack Stowell.

H. L. Ley, Superintendent of Building Inspection of Pittsburgh, gave an enlightening talk on the work of his department. The city

**Joseph C. Gardner**

began this inspection in 1926. In 1929 over 2200 inspections were made. Each inspection costs the owner or buyer of a heating plant $5.00. This inspection has resulted in better installations and more profitable business for the legitimate installers. An interesting feature of the code adopted is that it recognizes double wall stack only.

The next address was J. C. Miles of the Warm Air Furnace Fan company. His talk was on the benefits of warm air heating to the home owner. One of the points he stressed was that through air conditioning work either the furnace man or the sheet metal man can get out of the sub-contracting field and into the field of a general heating contractor.

Vacuum cleaners, electric refrigeration, automobiles and radios are sold in high priced units solely because the public is interested in health protection and enjoyment from care. The same thing can be applied to the heating plant.

"In mother's day women dressed for cold weather. They had woolen socks, petticoats and heavy underwear—today they wear almost nothing and the consequence is that heating systems are called upon to deliver an entirely different kind of heat. We don't want heat at ceiling level, we need it at the ankle level. This is most easily accomplished through a forced air system."

An interesting analogy drawn was the emphasis placed on cleanliness by the electric refrigerator salesman. These men tell housewives they eat 4 pounds of food a day and with that quantity the food has to be pure and clean. But the warm air furnace man is overlooking the excellent argument that any adult breathes over 24 pounds of air into his lungs every day, so why shouldn't the need for healthful, clean, correctly heated and humified air be just six times as urgent as the need for clean food.

### Merchandising Warm Air

The concluding speaker on the morning program was Jack Stowell of the Better Business Bureau, N. W. A. H. Association. His talk was similar to the talks which he has given to conventions from one end of the country to the other.

As reported in other issues of AMERICAN ARTISAN, the problem today is to sell warm air. What the motives are which sell any commodity were shown on charts and the elements of a successful sale were explained.

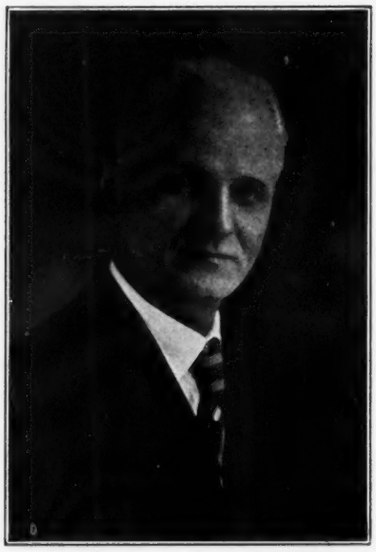
The important motives which make a man buy are comfort, laziness, fear and pride. Of the four, comfort comes first, closely followed by laziness, which is frequently called convenience.

The address discussed the different steps in making a sale and explained how these motives can be used to make a man sign on the dotted line.

### Thursday Session

With the opening of the convention Thursday morning, Otto Goebel told how the New York State meeting was solicited by a New York City firm of convention reporters who told the officers that they would report the meetings free of charge providing they were granted permission to sell copies of the proceedings to members. The members were told that copies would cost 35 cents, but no one inquired whether this was the cost of a complete report or only a part of the report. Shortly after the members returned home they received their copies express collect at a cost of $114.10 each.

Mr. Goebel requested the national association to send warnings to all local associations and back the New York association in its legal fight to eliminate this evil practice. The motion was referred to the Resolutions committee.



**Paul L. Biersach**

John A. Pierpoint, National Councillor, reported on the activities of the co-operative work with the Chamber of Commerce of the U. S. A.

This report was followed by an address by Thomas D'A. Brophy of Revere Copper and Brass. The high spot of this address was a very lucid explanation of the value of tieing up individual firm advertising with the huge sums being spent in national advertising by the manufacturers of metal products. A full report of this address will be published in a later issue.

One of the things the association

has undertaken within the last year is an investigation into overhead. One hundred and fifty questionnaires were sent out and 39 answers were returned. The average percentage of overhead shown by these reports are as follows:

| | Productive Pay Roll | Gross Business |
|---|---|---|
| Ohio | 76.4 | 18.6 |
| Texas | 86.6 | 28.3 |
| Wisconsin | 72.0 | 22.8 |
| Illinois | 57.0 | 21.2 |
| Missouri | 153.3 | 28.0 |
| Pennsylvania | 84.8 | 24.3 |

This makes the average overhead based on productive labor 88.3 per cent and 24.2 per cent on gross business.

Another activity of the past year has had to do with formulating a system of bookkeeping. F. C. Park gave an illustrated talk on bookkeeping and showed large charts which were reproductions of the sheets in his system. This system was explained and a motion and resolution of the Board of Directors approved a contract with Mr. Park's organization to make this system available to members.

**Thursday Afternoon Session**

The afternoon session opened with a report from George Harms on the work of the Trade Development Committee. Mr. Harms said that the association still owed some $23,000 on the book, but that if the copies now printed are all sold the deficit will be practically eliminated. He also appealed to every member to act as a salesman for the book.

The next speaker was Edwin A. Scott of Sheet Metal Workers, who entered a plea for the fullest use to be made of the trade development book.

George F. Hartman, sales engineer of Follansbee Brothers, discussed how to do roofing work at a profit. More details of this address will appear in a later issue.

One of the committees which is deserving of the highest praise is the entertainment committee. The banquet, the smoker, the trips around the city, were all well arranged and intensely interesting.

# National Ladies Auxiliary Holds Constructive Meetings

WHAT the Ladies' Auxiliary of the National Sheet Metal Contractors' Association may lack in numbers, it more than makes up in enthusiasm and good fellowship.

The two business meetings of the Association held under the guidance of the Chairman, Miss Mary O'Leary, during the Pittsburgh convention, were well attended and showed a desire to do real constructive work. When the Special Fund committee submitted the suggestion to the members that $150 be appropriated to cover the cost of fifteen copies of "Standard Practice in Sheet Metal Work," to be presented to sheet metal schools, libraries, etc., the announcement was greeted with a rousing cheer.

The committees who functioned at this meeting were as follows:

Nominating—Mrs. Ben Kolbenschlag, Mrs. Louis Rysdon, Mrs. Fred Baehr, Mrs. Thompson, Mrs. J. Bailen.

Special Fund — Mrs. Joseph Meyer, Miss Virginia Hutchison, Mrs. Albert J. Wagner, Miss Mildred Markle, Mrs. Ben Kolbenschlag.

Auditing—Miss Mildred Markle, Mrs. Joseph Meyer and Mrs. John Maier.

The officers elected to serve for the year 1930 are as follows: Miss Mary O'Leary, Louisville, Ky., president; Mrs. Fred Baehr, Baltimore, Md., first vice-president; Mrs. I. J. Herbst, Pittsburgh, Pa., second vice-president; Mrs. Ben Kolbenschlag, St. Louis, Mo., third vice-president; Miss Dorothy Harping, Louisville, Ky., secretary; Miss Irene Fingles, Baltimore, Md., treasurer.

## ESTIMATES—By J. G. Dingle

*(Continued from page 37)*

cluded in the different groups, so that your bookkeeper in building up her record of the cost of the job can build it in usable form.

You estimated your labor to cost a certain amount—so much for this part and so much for that part. Have your men report their time according to the work done, and your bookkeeper can build up the costs according to the estimate. When the job is completed, the bookkeeper can lay before you both the estimate—your GUESS as to the cost of the job—and her record which will show in detail the actual cost of the job. These actual costs will be for material and labor only, but your estimates are built up of material and labor, and to these you have added your overhead and your profit.

By careful study of these actual costs, you will learn wherein you are making good or bad GUESSES in your estimates. By this method, and this method alone can you improve your ability to estimate accurately the jobs you bid on. The mere fact that your estimate called for $150 in materials and $100 in labor, and you added $75 for overhead and $50 for profit—selling the job for $375—does not mean that you have made a profit of $50. Only after you have finished the job at a material cost of $150 and $100 in labor can you feel that you have made good on that job. Even then, your overhead may have amounted to $125 and left you no profit. On the other hand, it is possible, but hardly probable, that your actual costs were $125 for material; $50 for labor, and overhead amounted to $50, leaving you a profit—not of $50 but of $150—the $25 saved on the materials; $50 saved on the labor, and $25 saved on the overhead, a net saving of $100, which together with the $50 profit originally figured in the estimate, makes up the $150. This condition is however, very unreal.

# TWIN FURNACES

## Make An Ideal System for a Large Home

IN Ft. Wayne, Indiana, warm air heat for houses is recognized as being the ideal heating system. Much of the credit for this standing in the city is due the furnace dealers who have established the Standard Code in the city and have made installation according to code an established part of every firm's selling talk.

The establishment of the code in the city ordinance was a long and tough fight, but it was done and has been lived up to by the better class of firms in the community. It is logical, then, to find in the community a large number of interesting heating jobs.

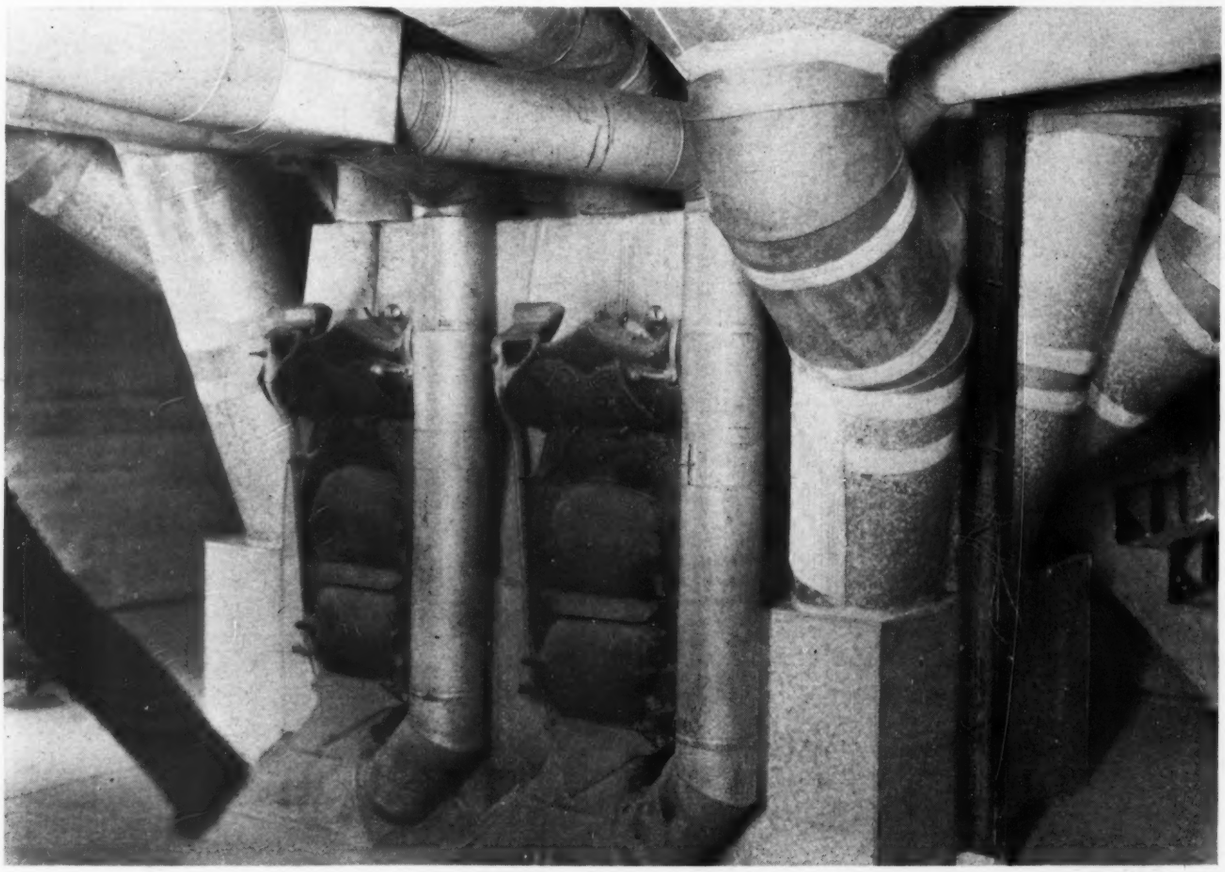
The pictures on these pages and the text matter of this article give the details of one such interesting job which was just completed this spring.

The job is a twin furnace installation with both furnaces enclosed in one casing and under one hood. The furnaces are, however, fired separately and the plant can be run with only one of the furnaces in operation.

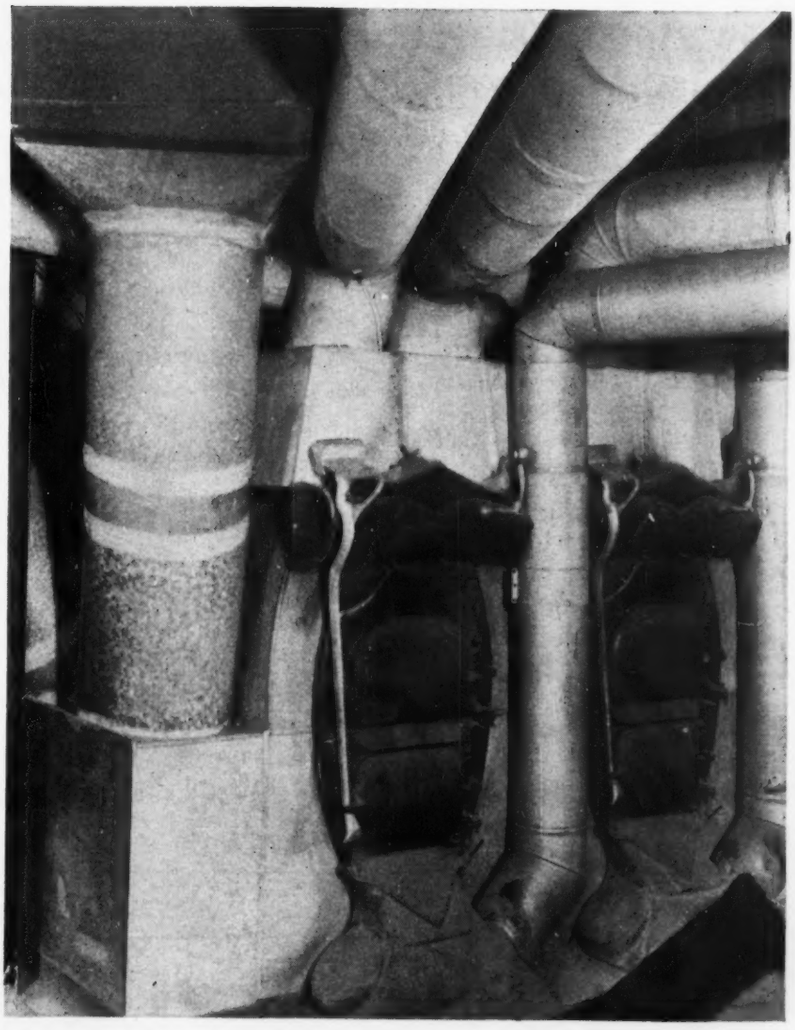
The plant was sold and installed by Banks and Coleman, one of the established warm air heating firms in the city, and a firm with a long record of good jobs behind it. This firm handles the Farquhar furnace and have handled this furnace since they started in business.

We're sorry that we cannot show drawings of the layout, but complete plans were not made and so are not available. The pictures, though, show what kind of a job this plant is.

A feature of the job is the size of the house. This home is in an exclusive district, restricted to fine homes and the house is quality construction throughout. The walls are solid brick with wood floors and wood partitions. The glass area is large, with a corresponding high heat loss. Some of this loss is overcome through the use of extra heavy window sash and frames and by complete weather stripping on all doors and windows. The ceil-



**The two furnaces were enclosed in a single casing. The cold air returns were brought from flat ceiling ducts to round pipe and these run into boxed shoes. This made a compact construction**



**The bonnet was rectangular shaped. The warm air leads were taken out of the top, another departure. All joints were wrapped**

ings and the roof are not insulated.

The exposure figured in inches rather than in B.t.u.'s was calculated at 1,082 inches. This would also be 1,082 inches of infiltration if you wanted to figure that way. There are fourteen rooms in the house—seven on the first floor and seven on the second.

In designing the system, the company figured an extra ten per cent infiltration so as to cover any extra low temperature condition which might occur. This meant that the infiltration was calculated at 1,200 inches and it was necessary then to put that amount of cold air into the furnace. If you haven't got that last straight, let's go over it again.

The infiltration in inches or the heat loss in inches is 1,200 feet. To replace this loss with warm air it is necessary to put into the house 1,200 inches of cold air at the furnace. Through losses in transmission the amount of warm air put into the house would be about 1,100 inches.

A very interesting feature is the fact that in every room on the first floor, except the breakfast porch, both warm air and return air openings are provided in the system. There are 10 warm air leads to the first floor and 6 leads to the rooms on the second floor. There are 9 cold air returns from the first floor. These leads in the basement are as follows: Five 12-inch leads, one 14-inch lead, one 10-inch lead, one 9-inch lead, all to the first floor. To the second floor there are five 9-inch leads and one 10-inch lead to the stacks.

Through the basement all the warm air leads are round pipe. The pipe is all galvanized and has wrapped joints. The cold air returns are flat ducts up against the ceiling, connecting into the stacks at one end and to the cold air boots at the other. The connection between ceiling duct and boot is through round pipes.

All the cold air is taken off the first floor and the grilles are placed at the outside walls, mostly under windows. The warm air registers are all along inside walls. Contrary to general practice only floor registers and grilles were used on the first floor, while wall grilles were used on the second floor.

**All the gutters, downspouts and porch ducts are of copper, in keeping with the quality of the materials used throughout the house**

The grilles and registers are all metal.

Some very interesting handling of the basement pipes can be seen in the photographs. With so many leads to handle, it proved quite a task to get them all into the bonnet without getting a mess looking like a pile of macaroni. The horizontal view of the furnaces shows this pipe work. The two pipes running up and down the front of the furnace are smoke pipes which are located in front in this make of furnace.

It can be seen that all the cold air returns were brought down and into the boots in gangs of three pipes. Where more than three returns had to be handled the ducts were joined and the pipe taken off the connection. This simplifies the amount of pipe work and eliminated a few pipes in the basement.

The exterior of the house was completed last fall and the owner wanted to finish the house by the end of this spring. So the furnaces were installed and the pipe and duct work put in. All during the past cold winter the furnace maintained a comfortable 60 degree inside temperature. This was accomplished with only five tons of soft coal and two tons of coke. The furnaces also worked under a handicap, for there were only temporary board doors in the house all winter and the heat loss through the door cracks must have been terrific. The registers and grilles were not put in until the house was completed and the floors finished. This bit of strategy saved the grilles and registers from severe pounding all winter.

The job sold for between 800 and 900 dollars and yielded a very nice profit.

Banks and Coleman have put in quite a number of these twin furnace installations. They have found them highly satisfactory and very efficient heating plants. Not one customer has complained of cold houses.

Some little trouble was encoun-

*(Continued on page 57)*

# How About You Trouble Shooters Putting Your Teeth in This One?

ROBERT J. REICHENBACH of Bay City, Michigan, has a problem which he wants some of you readers to assist him on.

In his first letter he asks if any reader can give him information on sweating along the smoke pipe. His case is so bad that the water actually drips off the pipe. He admits that his case is unusual and if you will just look over the layout he sent in you probably will agree with him. From that layout we would say that moisture drip would be fatal to the heating man.

Here is the complete information on the job.

Moisture drips from the pipe even when there is a steady fire in the furnace.

The basement is dry, but is without much ventilation.

There is only about 3 feet of smoke pipe in the basement, as the smoke pipe comes off the furnace with an elbow, runs up vertically through the basement ceiling about 9 feet, then into a bedroom.

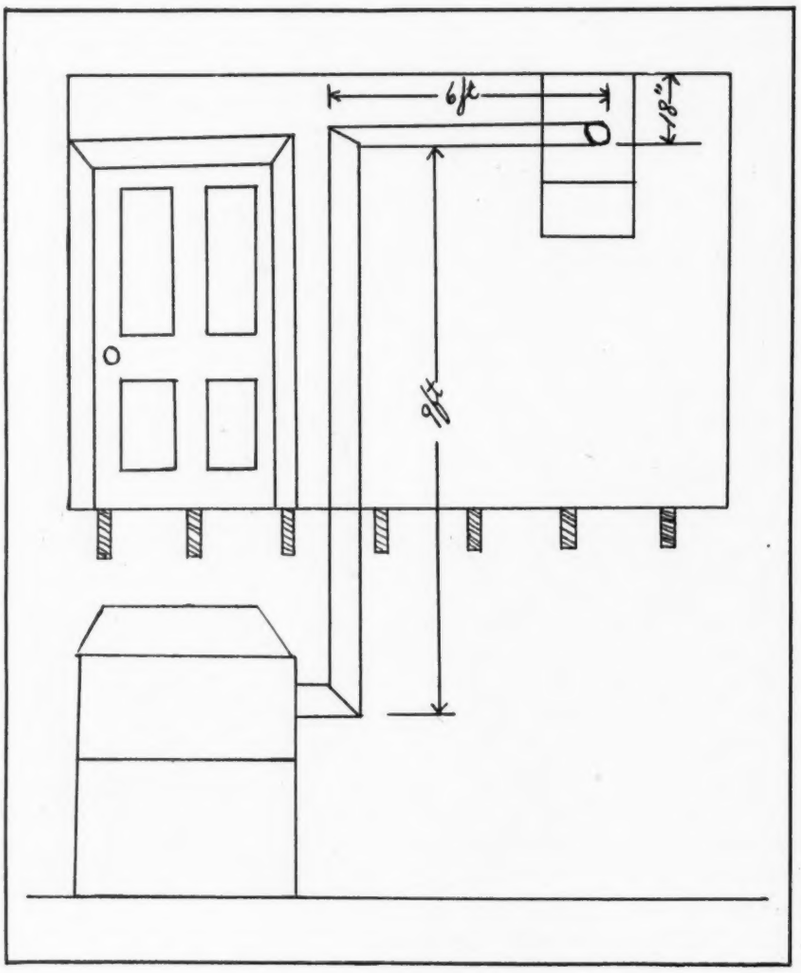
About 18 inches below the bedroom ceiling another elbow runs the pipe horizontally about 6 feet, where a third elbow takes the pipe into the chimney.

The chimney does not extend into the basement.

I have cleaned the pipe and chimney base thoroughly and repeatedly, without results.

I feel sure some of the readers of AMERICAN ARTISAN ought to be able to help me out.

Come on, let's give him some service.



# BOOKKEEPING

## The Most Essential Need in Today's Competetive Market

*By* **F. C. PARK**
*At N. S. M. C. A. Convention*

MANAGEMENT is the most important thing in your business.

I have investigated the reason for the success of a good many sheet metal contractors businesses in various parts of the United States. In every case real success has been due to proper management and proper organization.

**Management Includes**

1. Personnel of your organization.
2. Record of past contracts—credits and collections.
3. Planning your merchandising, which includes advertising.
4. Sales mindedness.
5. Installing and servicing.
6. Selling.
7. Adequate cost and accounting records.

On the first six of these items, I shall dwell but lightly, for your program includes several speakers who have, or will, ably cover these subjects.

1. Personnel of Your Organization—You must have competent and efficient help, such as bookkeepers, superintendents' foremen, drivers, journeymen and helpers or you cannot make a success of your business.

2. Record of Past Contracts—Credits and Collections—You should keep a record of past contracts and your credits and collections so as to be able to distinguish between good and slow paying customers.

3. Planning Your Merchandising and Advertising—You should make a plan covering your merchandising and advertising in advance according to the business you are doing.

4. Sales Mindedness—You should educate your bookkeeper, journeyman and yourself to be sales minded. Should a customer come in and want a particular piece of material and you do not have it, sell him something else that will answer his purpose just as well.

5. Installing and Servicing—When you do a job for a man, there may be other things or jobs he needs, and by your suggesting it to him, it will get you more work.

6. Selling—You should make an inspection free of peoples homes, and at the opportune moment suggest they need a new roof, new spouting, etc., thereby getting your business and keeping your men busy all the time.

7. Adequate Cost and Accounting Records—No man can hope to succeed in business today unless he has an adequate set of books and forms that tells him his cost of doing business and the profit on every job or contract.

The man who succeeds in business today is the man who knows—not the man who guesses. Too many sheet metal contractors are trying to succeed, but cannot, because they guess at their overhead, or claim they have none. They guess at their costs; they guess at what the material is worth—in fact, their whole business is a guess.

Don't make the mistake of starting the books and then claiming that it is too difficult to continue. A girl out of high school for $15.00 a week can keep the books, and if your business doesn't warrant that expense, part-time bookkeepers are always available and you can get them for fifty cents an hour, which means just a few dollars a week to know whether you are making or losing money.

When you started in business you made an investment of $200.00 or more for tools. Although these tools were necessary to your start, they were not quite as necessary as the investment in a bookkeeping system is to you today.

You know that chance will not help a man who will not help himself. You also know that opportunity generally favors the open-eyed, and that unwise people often take a blind chance. You may not be enjoying the best opportunities in the world, but you can at least make the best of the opportunities in the world, but you can at least make the best of the opportunities you have, and right here is where most men fall down.

Learn to talk straight on the subject of getting paid promptly. You have a right to say to any man: Mr. Smith, when will I get a check, or when do I get my money for the work which I have done for you. Any man who will intelligently plan and persistently work, can change the present "near-defeat" into the pure gold of power and success. And that is no theory—that is a proved fact.

There are three things on each bill you render from which you must make money:

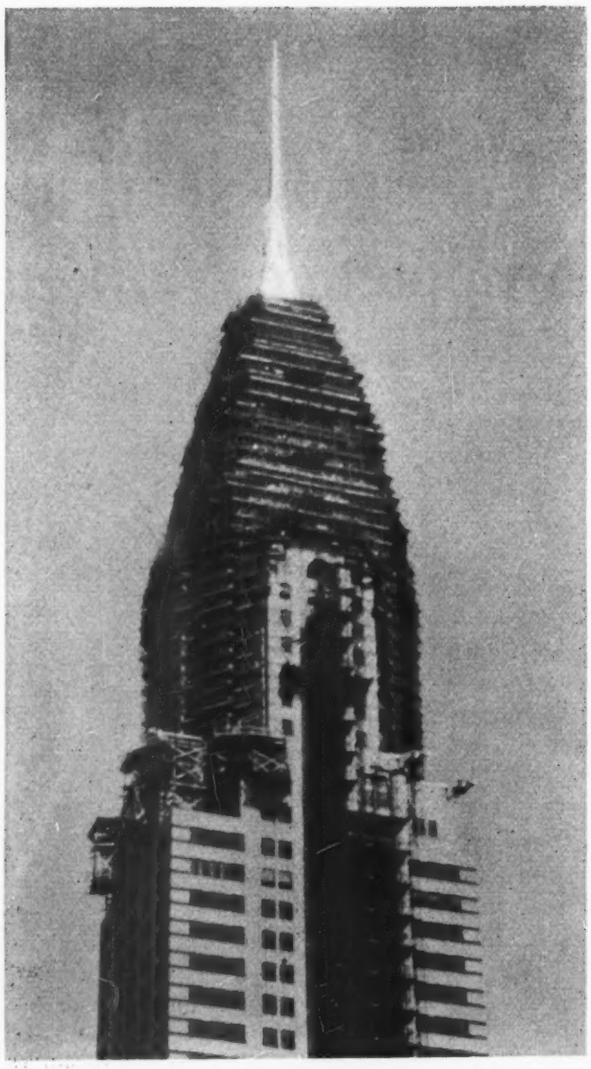
1. Material.
2. Productive labor.
3. Overhead expense.

Each superintendent or foreman, when he gives out a job, must know the material used, either by listing

*(Continued on page 57)*

# The CHRYSLER BUILDING

## PART II



**This picture shows the tower as it looked with the lower part and the KA2 facades surrounded by the scaffold. The final spire is finished**

IN the last issue we published the first part of a complete story on the sheet metal work on the Chrysler Building — the year's outstanding example of sheet metal work.

The job is spectacular, to say the least. But there is, nevertheless, an enormous amount of the very finest kind of sheet metal craftsmanship.

Part II, which begins here, discusses the construction of the metal facings on the tower, by far the largest part of the job. A complete education in surface sheet forming and seaming has been done on this part of the job.

Let's take up the story where we left off last issue.

Let's get into this tower right now. As we stand on the setback and look up the face we can see that instead of the upper tower being four sided, it is eight sided. The corners have all been cut off to form a sheer face which runs from the 61st floor to the 67th floor.

The exterior surface of this wall is KA2 metal. So are the window sash. So are all the bolts and rivets used to fasten the sheets to the face of the wall to join the parts of the sash. There's quite a job of sheet metal work in those four faces. Six floors high and probably 40 feet wide, the metal used for the surfaces alone represents considerable time, money and labor. The windows were made by Lupton, but were installed by the contractor.

We can't see any great area of the face because of the scaffolding, but the sheets are cut rectangular and fastened to a nailing surface. The sheets are locked horizontally top and bottom. Cleats hold the tops of the sheets in place until the next higher course is locked to the lower one. The seam is pressed down flat to make a water-tight joint.

We can ride the elevator to the top of this metal facade. This puts us at the 67th floor and from here on we walk. And it isn't on stairs either, for now we have to take to the scaffolding and mount the ladders to the beginning of the pinnacle.

It might be well to explain here that the spire from the 67th floor to the tip is a series of triangular openings with rounded hoods below the openings, the openings getting smaller and smaller as we go up until we get to the base of the pinnacle. We can examine this part of the work by looking at some of the pictures which various closeups of the different cuts of sheets and seams used to join all the sheets into one monolithic whole.

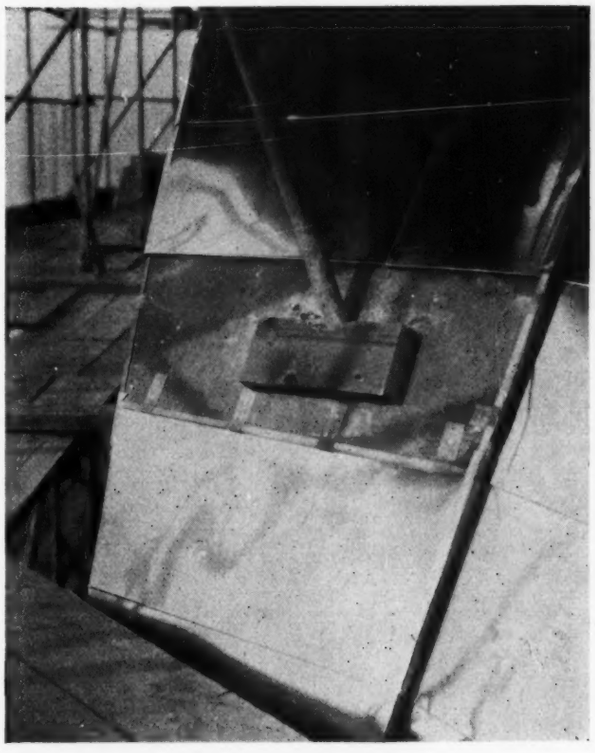
Let's stop here for a minute and examine some of the seaming work closeup. On this level we are right at the peak of some of the openings. Notice how these openings are triangular in shape and look at the cut of the sheets used to form them. The sides of the opening were formed in one sheet, bent to make a molding and carried out and flat against the face of the tower. A standing seam joins the mold sheet to the next one. From this opening over to the next open-

ing the sheets run long way up and down. The top and bottom are flat locked to the course above and below, but the sides are standing seams and double ones to give a paneled effect to the seam.

The double seam is formed along one edge of the sheet, one standing seam being only a false seam, but its mate does the holding to the adjoining sheet. Most of the seams run straight up and down, but so intricate is the design of triangles and arcs that some of the seams run off at angles to the tower. The intersection of these vertical and angular seams made a nice task of laying out the sheets and joining up the seams. How well the contractor worked out these details can be seen better than described.

While the vertical seams are locked for hold, the intersection of vertical and angular seams is soldered and this part of the job can be seen in one of the pictures. It might be well to mention here that soldering on this metal is no trick, but because of the high polish of the sheet all traces of flux have to be removed, for while the flux does not effect the sheet, the eventual result will be a mar to the polish which may weather a different color than the flat surface and so show a defect.

**Several types of seams were employed. The horizontal sheet seams were flat locked without solder. The double - locked standing seams are not soldered either. Where the double-locked seam intersected the pitched standing seam of the triangular openings the ends of the verticle seams were soldered to the pitched seam**



**Here is a sheet left off to accommodate a scaffold leg. You can see how all sides of each sheet were edged to provide flat locked seams. The clips were nailed to a nailing surface. Two edges were clipped. You can see a single standing seam in the foreground**

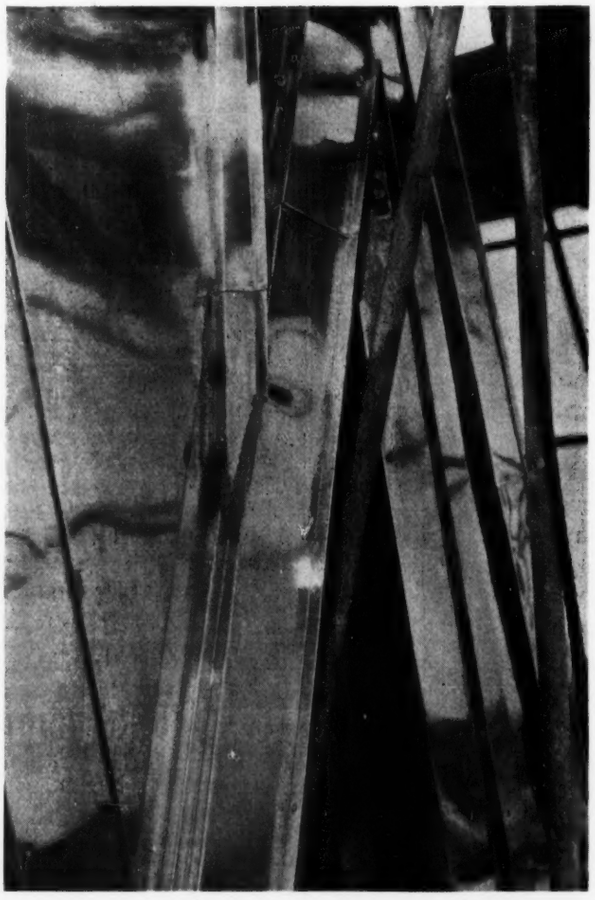
If we move right over here we can see a good illustration of how the sheets are fastened down. The hole was left so that the scaffold leg could remain in place. You can see how the sheets are edged on all four sides. The cleats are nailed to the nailing surface along the top and sides. The next sheet is then slipped over the seam and the seam flattened out just as you have been doing on your copper and galvanized roofing jobs.

If we go up the ladders a few more stories we can see some other interesting details of the job. You will have to hold your hats up here for there is nothing under this scaffold but a lot of very thin air and if you want to jump off, you can be sure that you will have more than enough time to review your past misdeeds on the way down.

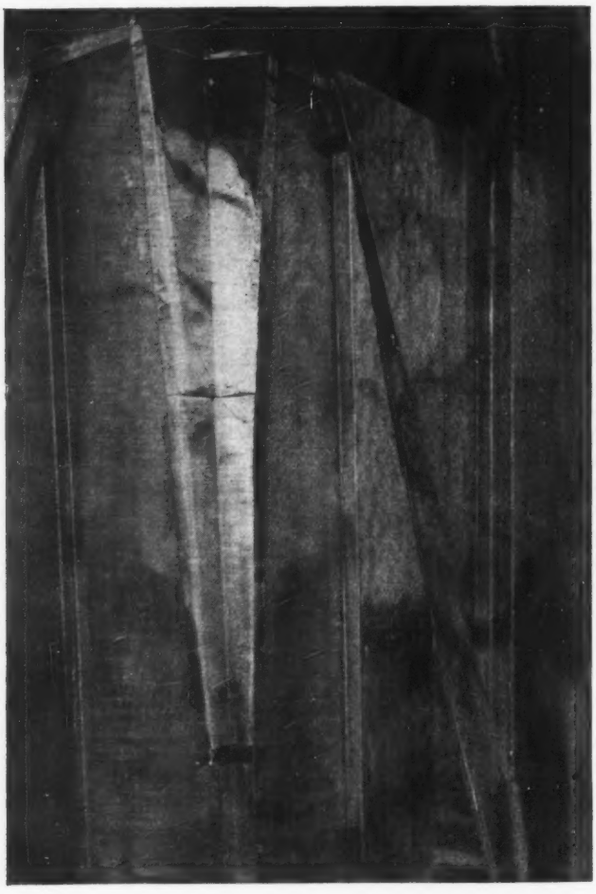
It's almost a thousand feet to the street here.

Here's an interesting corner where the seams are angular with the vertical and where a capping sheet ends a series of courses which come down from one of the triangular openings above. Notice how the capping is in two pieces with a lock seam horizontally between the sheets and a vertical locked seam down each leg of the cap. That's quite a neat little job and is typical of the many finishing touches required because of the design of the tower.

And here's a very good example of a point where most every kind of seams come together. The triangular opening shows the sheets used to form its face and the bending required to form the faces. Right along the edge and forming a face triangle is a standing seam which comes together at the top and is soldered. Down this sheet are the flat locked seams between courses. And intersecting this face with its two seams is a vertical double seam, which has a locked seam at its bottom and is soldered to the face sheet of the opening. When we think of all the places this sort of complicated work occurs on the tower we can get an idea of the size of the job.



**This close-up shows how a verticle double-locked standing seam had its seam ends soldered shut and was soldered tight to the pitched seam. You can also see the detailed forming done on the seam sheet of the triangular opening**



**Here is an interesting piece of work. A triangular capping sheet finishing out a corner where a pitched dormer slope meets a verticle surface. Two sheets had to be used. In spite of the difficult shape of the cap, locked seams without solder turned the trick. The end was crimped down**

We might as well go higher for there remains the spire at the top and we can see it through the pipes of the scaffold and it makes us want to examine it at a close range.

But before we get to the top scaffold let's stop here and look at this splendid example of craftsmanship.

We've been noticing that at the base of every triangular opening a conically pitched surface runs down to the circular face which holds the opening next below. The sheets of this surface are run vertically. The seams are standing seams ending at the bottom in flattened and soldered ends. The bottoms of the sheets are locked into the projecting molding sheet which protects the tops of the standing seams in the

panel below. You can get a good idea of this by looking at the picture.

The tops of the vertical seams are all soldered tight and the molding sheet lays over the tops of the seams to protect them from the weather. Right at this point the standing seams run both vertically and at an angle and both double and single standing seams are to be seen. The top of the molding strip is soldered but ends of the molding sheets on down the arc are flat seamed to the next sheet.

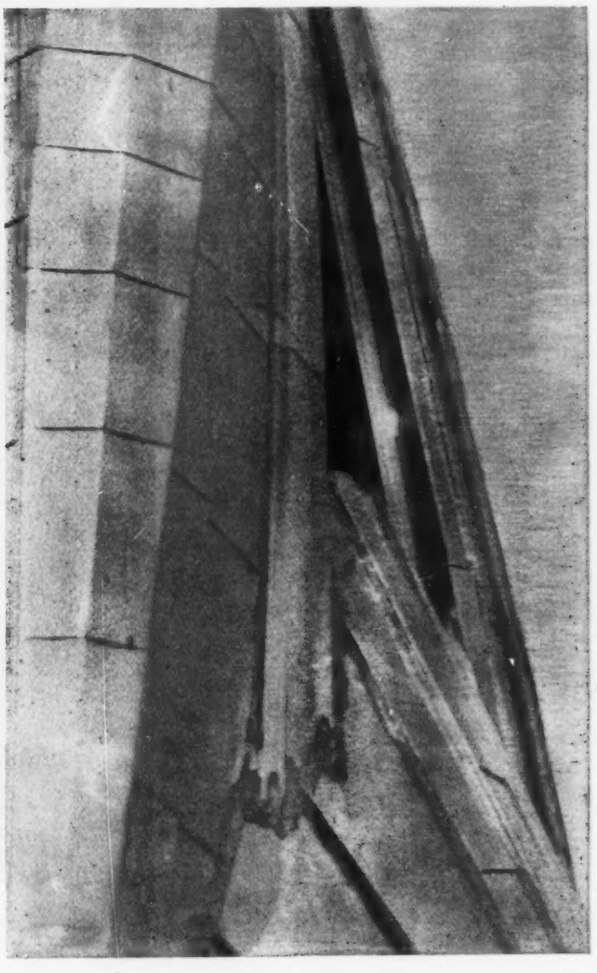
And now one more flight of ladders and we are standing on the top of the scaffolding as it remains today. The workmen are taking the scaffold down story by story, and as they go down they are putting the finishing touches to the work they have done, examining the seams closely to see that all flux is removed and polishing the sheets and seams when polishing seems necessary.

The first thing that attracts our attention is that spire, shooting up into the sky. From down below it seemed to be only a couple of stories high, but from where we stand now it seems at least 500 feet high. It's not quite that high, however, but it is 170 feet from this triangular opening just above our heads to the tip. No wonder this is the highest building in New York.

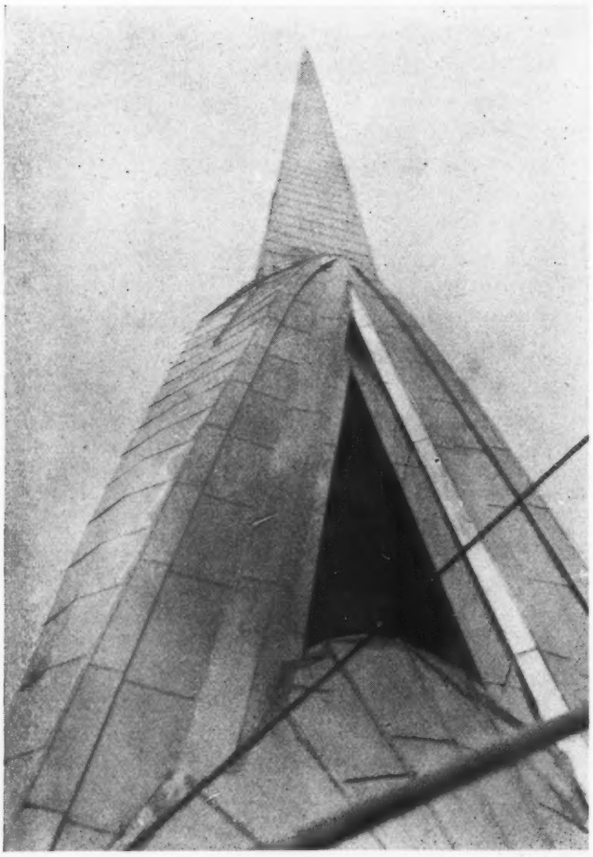
But far more interesting than the height is the way that sheet metal has been put on. Here level with our eyes is the top of one of the pitched surfaces where it is intersected by the triangular opening. One of the pictures shows the seaming of the pitched surface and the seam between the leg of the opening and the surface. The seam appears to have more than enough solder, but most of that is discoloration which is washed off before the job is completed.

This same view shows how the locked seams of the pinnacle sheets bent around the hip of the pinnacle. Three sheets come together along this hip. Outside is the hip sheet proper which is ridged down the center and locked to the sheet forming the side of the hip. This side sheet in turn is locked to the flat

**Here is a close-up of the bottom of a dormer where it meets a verticle surface. These seams are locked standing seams without battens. Note the crown sheet over the upper ends of the verticle seams. The ends of the dormer seams were soldered**



**This is the lower end of the spire. Just look at the forming done on the hip sheets. The seams are all flat locked without solder. A soldered end of a pitched seam sheet at the junction with a dormer also shows**



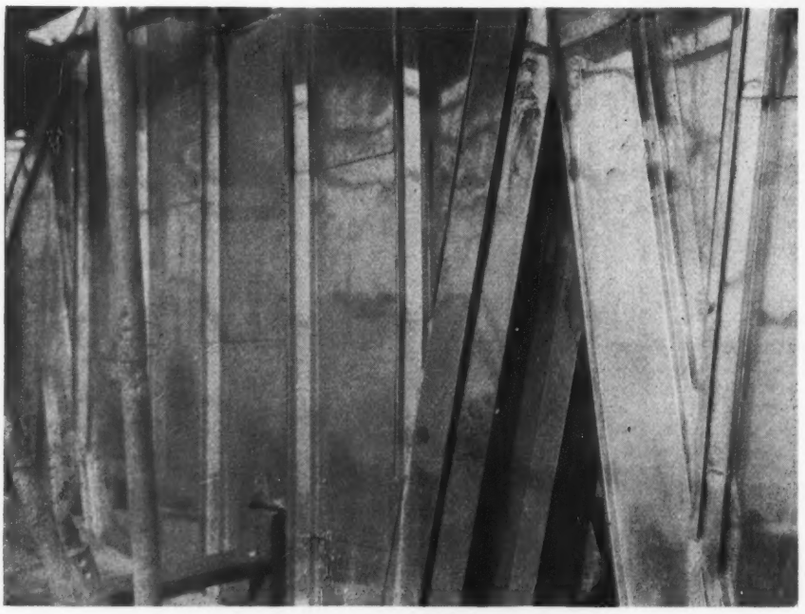
**This is how the spire looked when we took the picture from the top of the scaffold. There's 170 feet of spire sticking up there. The sheets are fastened directly to the structural frame. Quite some sheet metal work up there, eh?**

**These copings are all of KA2. The handrails are aluminum backed metal. Flat locked seams were used on the coping sheets**

surface sheet which lies between the hip and the leg of the opening. A lot of seaming work there you say—and rightly so.

But way up above is the pinnacle itself. You can see the formation of that pinnacle clearly from the picture. The seams are horizontally locked—the sheets being cut rectangular and getting smaller and smaller as the pinnacle reaches its top. The hip of the pinnacle is a flat locked seam. Just from which we stand now to the top is a large amount of metal—as much in fact as would be used in an ordinary metal job. All the sheets are flat and the artisanship required is not so technical as the work done lower down on the tower.

It is interesting to note here that there is no backing material under the sheets of this spire. Beneath the metal sheets is only the structural steel of the frame. The sheets were fastened to the structural members through a system worked out by the contractor. This system served considerably to simplify the work of applying the metal



**Here's just one more picture of some of that seaming work. The view gives an idea of how the verticle faces are in the form of huge arcs cut into by triangular openings**

Now let's discuss a few of the operating details of this huge job. The contractor made up the sections of the ornaments in his main shop, hauled them to the job and put them in place. The parts of the job, however, requiring the cutting and fitting and applying of surface sheets were all done on the job. All during the job two shops were maintained in the upper floors of the tower. In these shops complete equipment for cutting, forming and bending the sheets was established.

*(Continued on page 57)*

# Coal-Heating Conference

THE Committee of Ten, authorized at the conference held in Chicago on May 8, of representatives of the coal industry and heating equipment and accessory industries, held its organization meeting at the Union League Club, Chicago, on Tuesday, June 17. The membership of the Committee of Ten is as follows:

National Coal Association—H. A. Glover, general manager of sales, Consolidation Coal Co., New York City.

American Wholesale Coal Association—L. H. Dayhoff, president, Republic Coal & Coke Co., Chicago.

National Retail Coal Merchants' Association—Richard Miller, Miller & Banker, Chicago.

Anthracite Institute—Carlyle M. Terry, manager, Anthracite Coal Service, Chicago.

National Warm Air Heating Association—E. B. Langenberg, president, Langenberg Mfg. Co., St. Louis, Mo.

Heating & Piping Contractors' National Association—H. M. Hart, L. H. Prentice Co., Chicago, Ill.

Institute of Boiler & Radiator Manufacturers—Homer R. Linn, American Radiator Co., Chicago.

National Sheet Metal Contractors' Association—George Harms, secretary, F. Meyer & Bro. Co., Peoria, Ill.

Midwest Stoker Association—H. H. Kurtz, branch manager, Iron Fireman Mfg. Co., Chicago.

Accessories—Lorin W. Smith, Jr., Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.

The following members of the committee were present: H. A. Glover, C. B. Nienaber, manager anthracite department, Republic Coal & Coke Co., Chicago, representing L. H. Dayhoff; Richard Miller, Carlyle M. Terry, E. B. Langenberg, Homer R. Linn, Geo. Harms, H. H. Kurtz and Lorin W. Smith, Jr., who, in addition to representing Accessories, sat in for H. M. Hart. Others in attendance were M. E. Robinson, Jr., president, National Retail Coal Merchants Assn., Chicago; F. C. Honnold, secretary, Illinois Coal Bureau, Chicago; C. B. Huntress, executive secretary, National Coal Association, Washington, D. C., and representatives of the trade press.

It was decided that there should be a chairman, vice-chairman, treasurer, and secretary. Ballots were taken for each office, and the following officers were elected to serve for a one-year term: Chairman, H. A. Glover; vice-chairman, E. B. Langenberg; treasurer, George Harms; secretary, Lorin W. Smith, Jr.

After considerable discussion as to what the name of the committee should be, the following was agreed upon: Committee of Ten—Coal and Heating Industries.

The entire policy of the committee and the co-operation of the ten industries shall be in the interest of better service and satisfaction to the public in the use of solid fuels.

That the various industries advocate and plan co-operative service to the public by personal contact between their respective members in any locality.

Each industry shall confine itself to the solving of its own problems and the marketing of its own goods without indulging in unfair criticism of the other allied industries.

Each industry to establish standards (if not already in existence) by which its product and practice may be judged.

It was thought that much good could be accomplished through the effecting of contacts in the various cities and towns between the coal merchants, dealers in heating and ventilating equipment, and heating contractors. The committee felt that there was a very fertile field for constructive work through these local contacts in realization of its objective, namely, to serve the public more efficiently by promoting heating satisfaction with solid fuels. In the promotion of automatic heating through the use of coal-burning devices and accessories, in the servicing of complaints, in the setting up and the enforcement of local standards, in the holding of meetings from time to time, in publicity, and in many other ways, co-operation, it was opined, could be very helpful. It was thought that the committee should outline and furnish programs and material for regional or local meetings and co-operate fully with that movement. The local meetings will be given the greatest possible publicity in the local newspapers. To assist in the promotion of this work Chairman Glover announced the appointment of a Subcommittee on Regional and Local Meetings, consisting of Langenberg, Smith and Miller.

A Subcommittee on Ways and Means, consisting of Messrs. Harms, Glover and Langenberg, will determine whether it is advisable for the committee to have a paid secretary who will devote all of his time to this particular work.

Subcommittees on Standards of Product and Practices were set up. It was decided to have one subcommittee representing coal, another representing heating, and a third for stokers and accessories. For coal, the subcommittee consists of Messrs. Terry, Miller and Nienaber. For heating, Messrs. Linn, Harms and Langenberg. For stokers and accessories, Messrs. Kurtz and Smith.

A Subcommittee on Publicity and Speakers was named, consisting of Messrs. Smith, Kurtz and Terry.

A Subcommittee on Joint Service was appointed, consisting of Messrs. Hart, Linn and Terry.

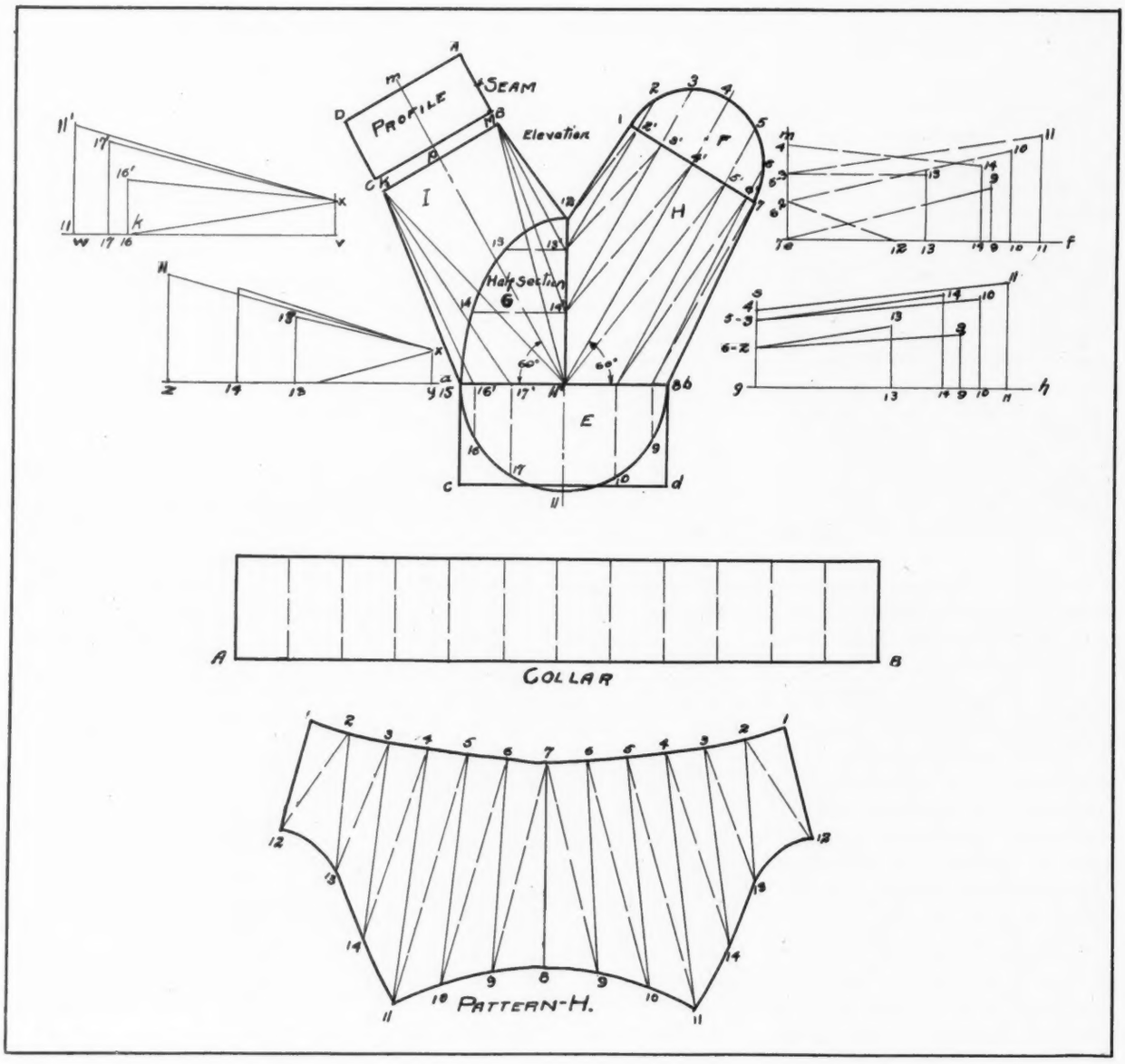
A Subcommittee on Manual, to make a study as to whether or not it would be advisable for the committee to prepare and issue a manual covering the various phases of the heating problems, will be appointed at the next meeting.

# Irregular Two-Way Y Branch

By L. F. HYATT
*Contributing Editor*

IN Figure 1 is shown the elevation of a two way Y Branch, a fitting quite common in the sheet metal industry.

First draw the rectangle a, b, c, d representing the collar, or the large pipe. Draw the half profile E. Through 11′ draw a perpendicular line of indefinite length. Next draw the center lines of the two prongs 11′-4′ and 11′-m. In this case they are on a 60° angle, as shown. Now step off on this line the distance representing the length of each prong. These may differ if desired. Letter the points 4′ and p. At right angles draw lines equal in length to the opening of the prongs, as shown. Draw the half profile F and the rectangle representing the rectangular opening of the two prongs. Now step off the distance 11′-12 as shown in the elevation. Draw the lines 1-12, B-12, 7-8 and C-15. Draw the half section G. This curve should be carefully drawn, a graceful curve, so that the joint between the two pipes will be a graceful curve. Next divide profile E into 6 equal spaces, numbering these spaces as shown. Divide half section G in three equal spaces. Number these spaces as shown and draw the horizontal lines intersecting 11′12. Also draw the lines in the two circular half profiles intersecting the straight lines 8-15 and 1-7. Now draw the light weight lines in the round prong, one dash and one dotted This is done to avoid confusion in their use later. Then draw the lines



shown in the prong with the rectangular opening. These lines represent the base line of the triangles in the diagram of true length lines.

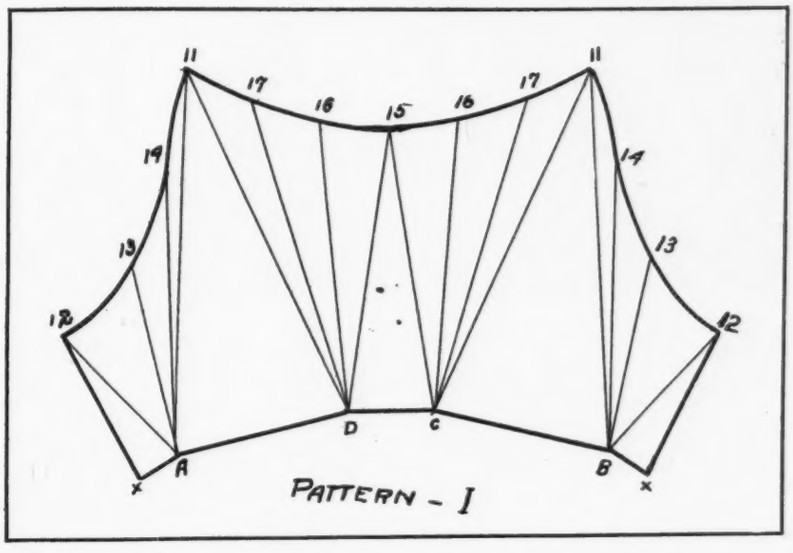
It is now necessary to find the true length of lines before beginning the development of the patterns. We will begin with prong H. Draw the two angles m-e-f and s-g-h. One of these angles is to receive the dash lines and the other is to receive the solid lines. The line 1-12 is of course a true length line.

Take the distance 12-2′ from the elevation and step it off on the line e-f. Now take the distance 2-2′ and step it off on line e-m locating 2, and draw a line connecting this point and 12, giving the true length of 12-2 found on the elevation. Now take the distance 13′-3 from the elevation and step it off on e-f as before, erect a perpendicular and step off distance 13-13′ on this line. Take the distance 3-3′ from the half profile and step it off on line e-m. This locates point 3 on the diagram with a dash line, and this is the true length of line 13′-3. Continue with the dash lines as before.

We must now find the true length of the lines on prong I. Draw the two angles x v w and x y z. First take from the elevation the distance K-15 and step it off on line v-w. Now on the line v-x step off the distance X-B which is one half of the side A-B. Connect the two points with line K-X. Now take the distance 16′-K and step it off from point V, locating point K. On line v-w from the point erect a perpendicular line of indefinite length. Step off the distance 16-16′ found on the half profile E on the perpendicular line just drawn and number the point just located 16′. Connect this point with X. This is the true length of K-16. Likewise step off the distance K-17′ found on the elevation, on the line v-w, erect the perpendicular line 17-17′ and connect 17′ with point X giving the true length of K-17′. Finish this group of lines by taking the distance K-11′ from the elevation and step it off on line v-w, erect the perpendicular and step off the distance 11′-11 on the perpendicular line just drawn, then connect this point with X.

To begin the other group of lines take the distance M-11′ on the elevation and step it off on line y-z, erect the perpendicular line Z-11 and connect this point with X. Continue as before, until all the lines are used.

We are now ready to begin the development of the pattern. From the elevation take the distance 7-8 found on prong H. This line is found in its true length on the elevation. Step off this distance on line 7-8 as shown on pattern H. Now from the group of true length dash lines take the distance 7-9 and with 7 as a center strike arcs of indefinite length each side of the line 7-8. Next from the half profile E take the distance 8-9 and with 8 in the pattern H as a center strike arcs intersecting arcs just drawn. Draw dash lines from point 7 to these points which are numbered 9. Next take the distance 9-6 from the group of solid lines, and with each 9 as a center strike arcs of indefinite length, and from half profile F take the distance 7-6 and strike arcs, using 7 as a center, intersecting the arcs just drawn, locating the two points in pattern H, and connect the points 9-6 with a fine solid line. Take the distance 6-10 from the group of dash lines and with the two points numbered 6 as centers, strike arcs of indefinite length. Take the distance 9-10 from half profile E and with the two numbers 9 on the pattern as centers, strike arcs intersecting the arcs just drawn, locating number 10 on the pattern. Now connect points 10 and 6 with a dash line. Continue in this manner with the dash line 6-10, solid line 5-10, dash line 5-11. Now take the distance 4-11′ and with 11 on pattern H as a center strike an arc and with the distance 5-4 as a radius and 5 as a center strike an arc intersecting the arc just drawn, locating point 4.




Now take the distance 4-14 as a radius, and with 4 as a center strike an arc of indefinite length. Then take the distance 15-14 on the half section G, and with 11 on the pattern as a center strike arcs intersecting the arc just drawn, locating point 14 in the pattern. Continue with all lines up to and including 2-12, as before, taking the distances 14-13, 13-12 from the half section G. The line 1-12 as found on the elevation is of course true length. Add an allowance for the seam, and an allowance for a lap along the edge from 11 to 12. This should be notched in v shaped notches. This completes the pattern for prong H.

We are now ready to develop

*(Continued on page 57)*

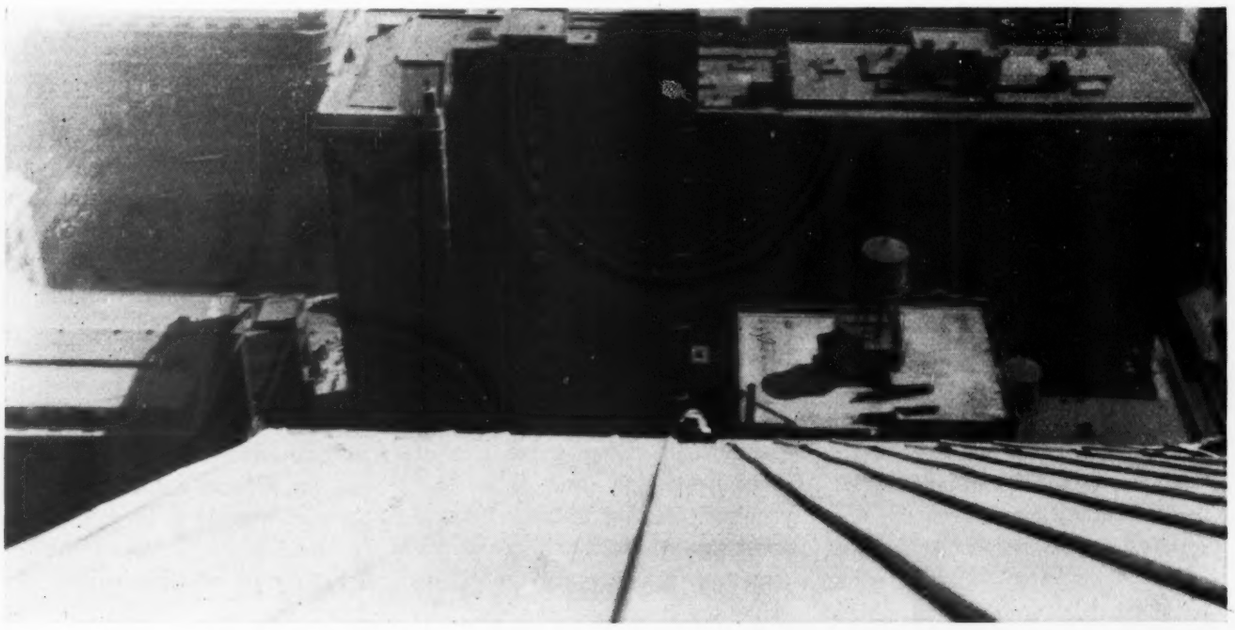
# 7 Tons of Aluminum Roof and Skylight 600 Feet Above Street Level

**Louis Holly, Mike Kay and Vic Macile doing a little sheet laying 600 feet above the street. You can see the battens and clips which hold the sheets.**

WITHIN the last few months the sheet metal industry has been told about many extraordinary roofing jobs on the country's newest skyscrapers. In practically every city the newest buildings are being roofed and trimmed with metal of one kind or another. As a matter of fact, sheet metal as a roofing and decorative material is decidedly in favor with architects today.

One of the notable examples of this new order of things is the Chicago Board of Trade building, which stands at the foot of La Salle street in Chicago. This magnificent structure towers more than 600 feet into the air. One of the features of the building is a glassed-in promenade at the top floor level surrounding the entire tower and connected with the elevator service of the main tower.

The sheet metal work on the building, including the forming of the bars of the glass enclosure, was

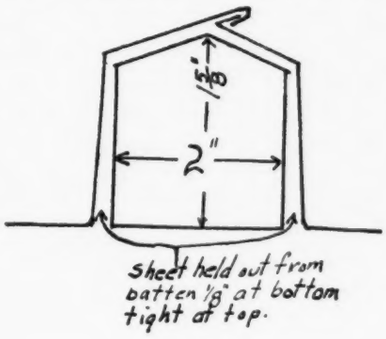


**Looking down the east roof. Notice how the battens and the sheets follow the contour of the concrete roof. The man below is looking out one of the observation windows. There is a different pitch to the glassed part of the roof.**

done by the Shean Steel Window Company of Chicago. This company has done numerous outstanding jobs in the Chicago area, such as the Civic Opera, Pittsfield and others, and has shop facilities to handle the largest or most intricate forming work demanded by present day architects.

Work on the sheet metal contract began last February and has just been completed. More than 7 tons of aluminum were used to form the supports for the glass and for the sheets of the roof.

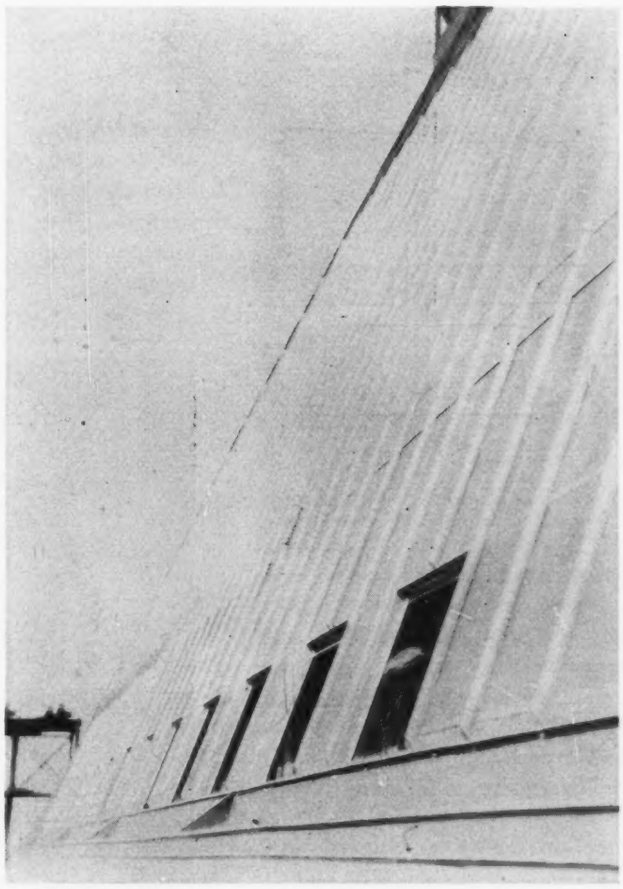
The building was designed by




Drawing 1

Holabird and Root of Chicago and is one of the most attractive of the city's new office buildings. The roof is one of the outstanding features of the structure and sheathed in aluminum as it is will present one of the most impressive roofs in downtown Chicago.

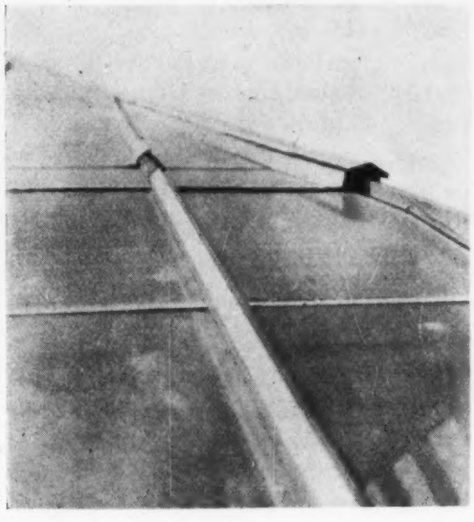
The aluminum possesses qualities to withstand discoloration from weathering and is claimed by the makers to have an untarnishable color. The impressive roof is to be topped by a statue designed in France and built of cast aluminum.



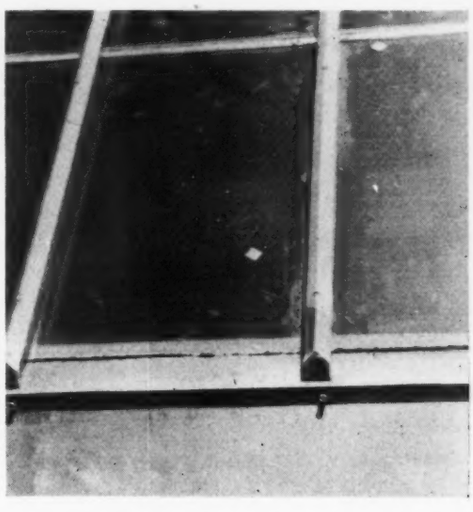
**This view was taken from just below the gutter. The three types of bars can be identified in this view. Bar 1 intersects the top of the opening, bar 2 runs down one side of the opening and bar 3 holds two stationary glass sections. The north and south sides are much steeper than the other two faces.**

The roof is of the batten type and is sheathed in aluminum. The roof has several unusual features, as for example, the stubs which form the beginning of the batten as the battens come off the hips. Or, as another example, the provision for expansion of the sheets between the battens (Drawing 1).

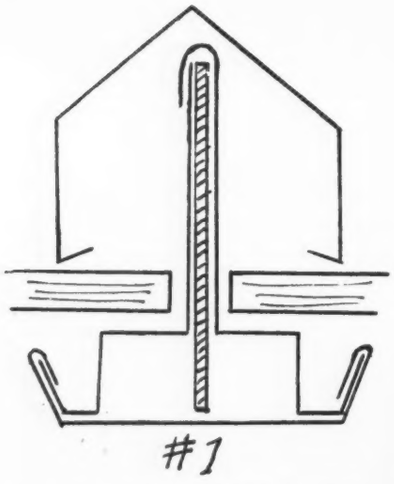
The hips are formed of two pieces of aluminum bent to provide a locking seam for a batten cap at the top and a projecting shoulder at the base. The battens of the roof start at the hip and must be water tight at the intersection. Stub battens as shown in one of the drawings were made and welded to the hip sheet in the shop. The hip



**Left — This shows one of the battens and bars holding two stationary glass sections. Where the batten intersects the hip is one of the stubs shown in one of the drawings. Note the cap and side sheet of the hip.**



**Right—A close-up of a batten end. The round pipe in the foreground is a weep hole emptying into the gutter.**




**A section of the bar which intersects the top of a movable glass section.**

sheet was put in place and the stub slipped over the top of the batten. This design eliminated a lot of welding work on the job and reduced the cost.

The roof of the tower has a concrete deck under the sheets. This concrete slab is 4 inches thick and was placed in such a manner that the surface of the concrete is uneven. The sheets, following the contour of the concrete, required extra work to keep hollows and bumps out of the surface. The provision for fastening the sheets down consists of horizontal sleepers embedded at 3-foot intervals across the slope of the roof from the top down to the upper end of the glass enclosure.

On top of the concrete and the sleepers building paper was laid up and down the roof. On top of the paper the battens were nailed to the sleepers. These battens are on 2-foot centers and run up and down the roof.

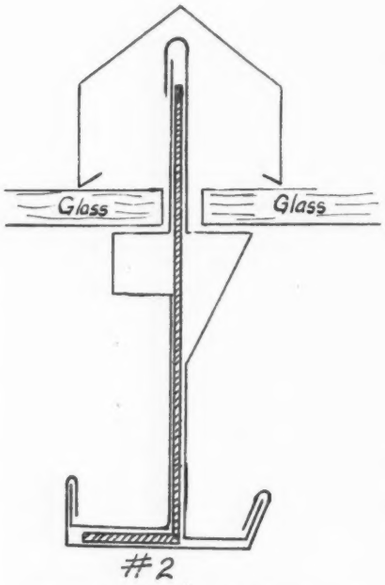
As can be seen on one of the drawings the battens are 2 inches wide and 15 inches high at the top. The battens are cut vertical on the outside faces. The sheets were formed so that their width from bend to bend is 19¾ inches. This permits a space of ⅛ inch between the bend of the sheet and the surface of the batten. This space takes care of expansion across the width of the sheet.

The formation of the sheet can be seen in one of the drawings. Adjoining sheets are hooked together over the batten and then pounded down. This forms a tight seam which does not require any welding. The sheets were cut 28 inches wide and 96 inches long. Of course sheets which run up along the hips vary in length as required to finish out a course.

The aluminum used was all of 18 gauge metal except in the gutters, where aluminum of 16 gauge was used. The gutter is large in size and of the flat bottom type with the outside face lower than the back side. Reinforcing plates of aluminum are placed at intervals to provide true alignment.

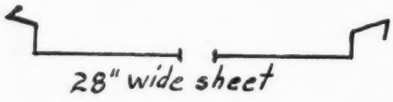
All of the glass in the promenade is held in place by aluminum members formed from two gauges of metal. One of the photographs shows a view cross section of one of the bars. The sketches show how the different bars were formed up out of strips of aluminum.

In the whole skylight three forms of bars were used. These are designed in the sketches as numbers 1, 2 and 3.

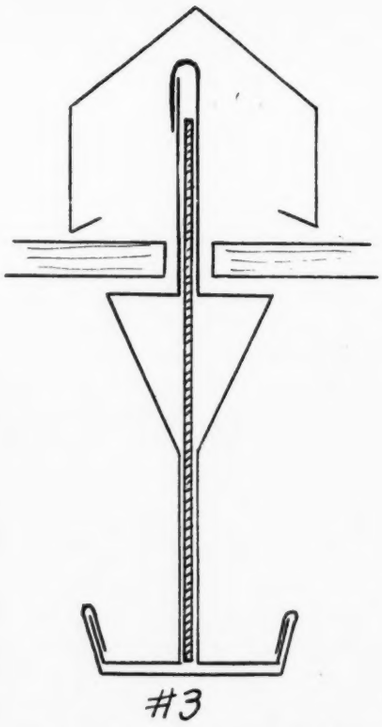



**One of the bars which divides movable and stationary glass sections. The heavy core is turned into the movable section for a footing.**

**Photograph of a sample bar sawed through to show how the strips of metal were formed. The bar is just under 5 inches high. The core is 14 gauge and the other metal 18 gauge.**




**Cross section showing how the roofing sheets were formed**

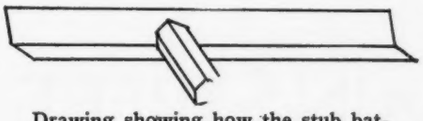



**This bar was used between two stationary glass sections. The core has no foot. The pyramid over the bar shows a cross section of a batten cap.**

Bar No. 1 intersects the top of the glass panels which move up and down to admit air. The center of the bar is a strip of 14 gauge aluminum. Two other pieces of 18 gauge aluminum were formed as shown around the core. The pressed out base forms the base for the glass to rest on. The bottom of the bar is closed up with a single strip bent in a flat locked seam over the ends of the two side strips. The cap shape and location are shown on the sketch.

A different type of bar, No. 2, was used along the side of the window section which opens. This bar serves two purposes, one to form a slide for the glass and the other as a continuation of the battens of the metal roof.

The formation of this second bar is very much like that of No. 1. The bar is much higher, however, and the side strips follow up along the core for a short distance. The side strips are formed as in the other bar on one side and to a V-shape on the other. The side having the rectangular support is the side on which the glass of the moving section slides, while the glass on the other support is stationary. Another difference is in the core where the heavier core strip is bent at right angles to the vertical to form a rigid support for the open side of the section of the skylight. The cap is just like the other.



**Drawing showing how the stub batten caps were formed up in the shop. The two pieces were welded**

Bar No. 3 is of the type which supports two adjoining stationary glass areas. The support for the glass is of triangular cross section on both sides, while the core does not form a footing in the base.

In all parts of the job here metal had to be joined, welding was used since aluminum cannot be economically soldered. Oxydrogen and hydrogen was used with a pure aluminum solder and a special flux. The main points in connection with welding aluminum were given in the article telling about the aluminum roofing job just completed in Milwaukee, which appeared in the May 24 issue.

## TWIN FURNACES

*(Continued from page 44)*

tered at first in selling a twin furnace idea to the customers. They felt that two furnaces would burn just twice the fuel a single furnace would. However, plants already in have been used to show that two furnaces operating under maximum capacity do not burn nearly as much fuel as one furnace which has to be forced in cold weather. Once the ice was broken the twin furnace idea made fast progress through word of mouth advertising.

## TWO-WAY Y BRANCH

*(Continued from page 53)*

pattern for *I* (Figure 2). Draw line C-D of indefinite length. On this line step off the distance C-D found on the profile of I. Now using the distance K-X in the diagram of lines, and C-D as centers strike arcs intersecting each other at point 15 as shown in Figure 2. Next take the distance X-16′ and with C and D as centers strike arcs, and with distance 15-16 found on profile E, with 15 as a center strike arcs again locating points 16 each side of point 15. Continue in this manner until the line 11-b is used. Now take the distance D-A from the profile and strike arcs C and D as centers, and from the lower group of true length lines take the distance 11-X and with the two points 11 as centers strike arcs intersecting the arcs just drawn, completing the triangles 11-A-D and 11-B-C. Continue with all the lines using the distances 15-14, 14-13, and 13-12 found on the half section to get the correct distance between the same points on the pattern I. The distance 8-12 is of course the true length of the seam line x-12 on pattern I. Add allowance for the seam.

The pattern for the collar is obtained by stepping off 12 spaces equal in length to one of the spaces found on the half profile E and drawing a line parallel to A-B equal to a-c on the elevation, and add the seam allowance on each end.

## THE CHRYSLER BUILDING

*(Continued from page 50)*

Part of the time three shops were maintained. Any one of these shops had as much equipment as an ordinary sheet metal shop and used a force of men which at times approached the 100 employee mark and at all times had half that number.

Work began about June, 1929, and at the time these pictures were taken the job was just entering its last stages.

All the metal was of 24 gauge, both for the ornaments and the surfacing sheets. However, two finishes were used, what is known as satin finish for the ornaments and a special roof finish for the surfacing sheets. Both these finishes possess one characteristic in common—the fact that the metal when handled rightly will not tarnish

## BOOKKEEPING

*(Continued from page 45)*

the material before going on the job and checking the returned material against the list, or on small jobs, by an examination of the job during its progress, or before and after. If he does one or the other, he is a money maker. If not, he is a loser. When you do not visit the job and watch your men, you leave your pocketbook open.

Compel each man who has the workman's work sheet to enter all material on the sheet, give him two sheets if necessary, then from your experience, or your estimate, if there be one, check back. Be sure that the sheet has the true amount of material used, no more, no less. Allow for waste, because waste is important. Be sure that all time is properly charged to the job, plus your overhead, and if that is done it will show you how much money you have made or lost on the job.

**Carl Decker's location on a prominent corner was passed up by others because of the sloping lot. This feature has been capitalized on to simplify loading**

# In Colorado Springs Carl Decker Moved FROM AN ALLEY TO MAIN STREET

*By* **A. L. NEWSOM**

THERE used to be some sort of tradition around Colorado Springs, Colorado, that if a customer wanted any kind of a tin job done, or needed a job of sheet metal work, he must go up and down, in and out an alley or two, until he came across the man who did that kind of work.

But that condition—or tradition—no longer maintains in Colorado Springs, for Carl Decker, in his Metal Products Company, at the corner of Walnut Street and Colorado Avenue, has salesroom and office combined, shop, and several storage rooms, all of which are as attractive and up-to-date as any store in the city.

Five years ago Mr. Decker opened a shop at 118 North Webber Street, on a little more than his nerve, his knowledge of, and his ability to do, anything in the sheet metal work and allied trades. His business grew and expanded until a year and a half ago he bought the lot at the corner of Walnut and Colorado Avenue, where he has built this new building.

Mr. Decker bought this corner for the very reason that some men engaged in some businesses would have refused to buy it—the sloping contour of the lot. But the slope of the lot permits his office and salesroom to be on the level of Colorado Avenue, while the store runs in such a way as to make possible loading and unloading all heavy and bulky materials with the least amount of effort expended by loading directly from the trucks into the storage place, or vice versa.

Aside from making loading, whether it be to storage or the sending of materials to various jobs, much easier, large windows, arranged in the sloping building give the maximum amount of light to the office, the work shop, and the several storage rooms. Mr. Decker says his arrangement of the storage places in the building saves him at least $1 on every furnace that enters his place. The only real basement in the place is under the office and shop, and here, in shelves and

**The Decker company does roofing work also. The display shown has proved to be a sure business getter. The yard and shop are on the main thoroughfare between Colorado Springs and Manitow and are seen by thousands of passersby**

bins of assorted sizes, are kept the smaller fittings, all of which are made in the shop.

At the rear of the main building are two garages, both of which can be entered from the street. And the lot, 25 by 190 feet, gives storage space for roofing materials, for the kettles which are so necessary for this kind of work, and a warehouse in the rear takes care of surplus stock of roofing.

Skylights and gutters, metal, tile and composition roofing, furnaces, and kindred things are repaired or put in new by this firm as the occasion and condition requires. And last year Mr. Decker sold and installed 117 furnaces. He handles Nesbit Moist Heat Furnaces, of Omaha, Neb.

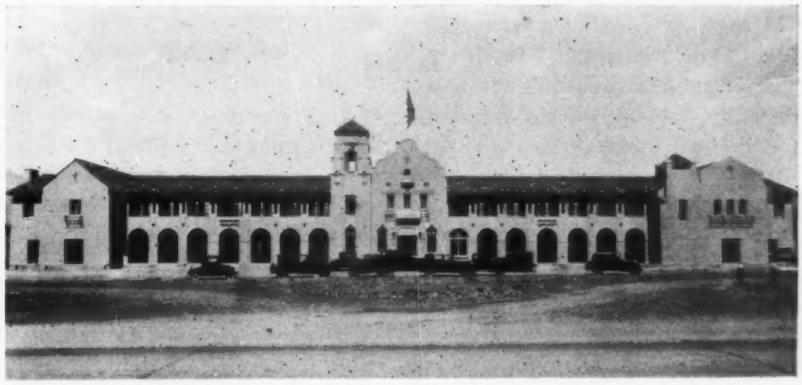
Furnaces, roofing and galvanized sheets are bought by carload lots and are stored in the various rooms and in the warehouse at the rear.

**This is one of the screen advertisements which are a part of the publicity program to sell the firm and its services**

But the contour of the lot is not the only advantageous feature about this building. The location is one of the best in the city, because it is on the auto way and the street car line from Colorado Springs to Manitou, via West Colorado Springs. Anyone going by car or automobile to the Cave of the Winds, the Garden of the Gods, Cliff Dwellings, Pike's Peak, the famous Ute Pass, the Corley Mountain Highway, and to numerous other scenic spots in the great Pike's Peak region, must pass this place.

That is why Mr. Decker declares that every dollar's worth of advertising he does in this new location is worth twice the amount spent for advertising in the old one.

"I think I may be pardoned for saying that the place is attractive—outstanding," said Mr. Decker.



**This is the administration building of Alexander Industries, Inc. A complete ventilating system was installed by Metal Products Company**

"And when hundreds of persons are passing here every day—and literally thousands every day in the summer—those persons can't help being attracted by the place.

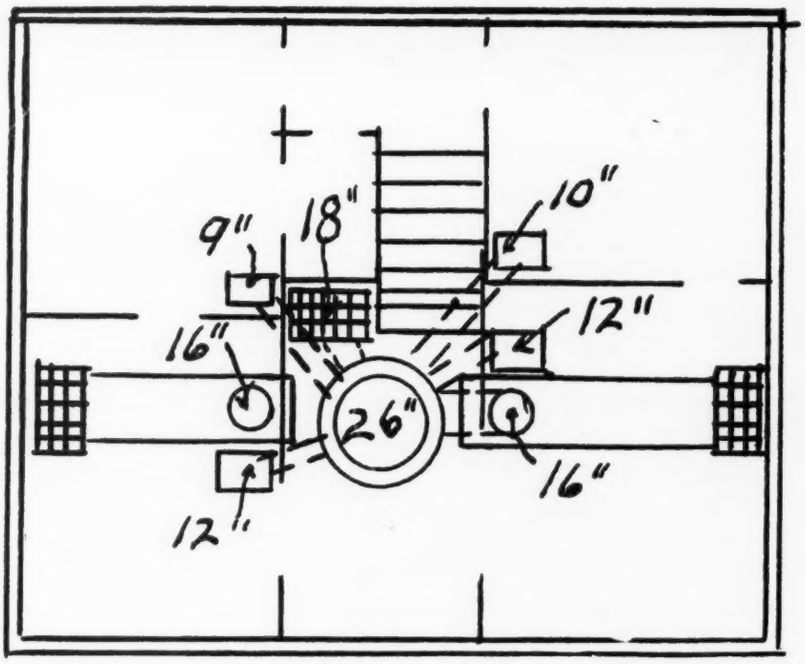
"And while I carry newspaper advertising to keep the name of the place before the reading public, I really believe that in this location—with nothing to compare with the place around us—that billboard advertising is the best advertising we do. At this time are are using eight billboards and the cost is rather high. But people are bound to connect the place with the billboard advertising.

"Then, this little roofing ad," said Mr. Decker, calling our attention to the miniature roof at the side front of the building, "arranged and lighted as it is, we believe to be very effective advertising.

"We do some direct mail advertising and use some screen advertising put out by the Alexander Industries, Inc., in our local theaters, and we also advertise at times by radio over our local station. But we believe, as we said, that the roofing display and the billboards bring us the best and the most direct returns.

"There is still another feature of this location which we think is very helpful, and that is that there is always plenty of parking space. At a downtown store in a block with a dozen other stores, even if there is no other business like our own, it is often almost impossible to find a place to park within easy distance of the place. A man looking for an estimate on roofing, furnace or gutters might have to drive blocks to find a place to park, and by that time he might be nearer a hardware store or another tin shop—and it is likely he would leave his order at the other place.

"Here a man can find a place to park as long as is necessary. And when he comes here we are much more likely to sell him or get the contract for his work than if we were near other stores. For there is always the temptation to shop, even in our line, if there are stores very near."




# That Floor Draft Problem

JUST after the first appeal for help on that floor draft problem was published, we received a letter from Edward S. Slocum of Champaign, Ill. Mr. Slocum said he didn't wonder the plant did not heat and also thought floor drafts under the present layout couldn't be avoided.

He furthermore offered, if we supplied some missing information, to send us a layout which would heat and which wouldn't have any drafts.

We sent the information.

Now he sends us in a layout and information telling how he would alter the plan to make it 100 per cent efficient. Here it is—

"I do not like the layout of the original plan at all. Both return and warm airs are not 'engineered' but 'just put in.' I would put separate pipes to all rooms; floor registers down stairs, if the customer would let me, and of sufficient size so the air travel would be slow, and registers located as near the furnace as possible.

"Return airs centrally located and to serve at least two rooms, and of capacity to at least equal the warm air flow. I would think twice before putting a 24-inch furnace of the ordinary type in this house. Most furnaces are rated all they will stand and in practice I find that if a house figures require a 24-inch for ordinary conditions, that it is good policy to put in a 26-inch. This practice saves the customer money in the end and I have one less trouble job to worry about.

"Inclosed find the house plan and layout as I would install it, the four rooms upstairs I figure running 9-inch pipes to; the return air face in the hall will trap the air from upstairs under ordinary conditions. I have provided 662 inches return for 622 inches warm air.

"If basement room was of no value, and cost not considered, I would add to the equipment, but to the 'common people' the matter of expense enters largely into the question, and the best for the least expense and getting reasonable results, is what counts.

"The only trouble with the original is, size of furnace, location and size of return airs, size and location of warm air registers. Otherwise the house is good."

# RANDOM NOTES AND SKETCHES

How well do you remember names and faces? We print here the picture of a smiling young man who looks just like his dad—at least so far as the smile goes. Beyond that—well the resemblance is not quite so strong. For instance his father used to have lots more hair than the boy has—oh, yes, far more hair.

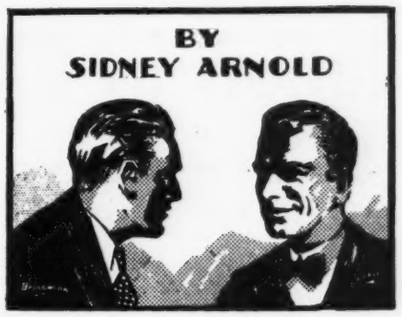
(At least that's his father's story and we'd never, never doubt it.)

But that infectious grin is his father all over again. And to make identification a little easier we'll say that the boy's father does his work down in the center of a state

commonly known as the Prairie state. Well, we might qualify that and say—it is reported that his father does his work.

The father is also well known around the conventions, where he is always a model person—with no qualification. He is known for his high good humor, his ready wit and congenial fellowship.

For the most correct guess the ARTISAN will present a pure, 14 carat gold banded ceegar. Let's go!




**Another Can**

College Boy (walking): Gimme a gallon of gas.

Garage Man (snappishly): Well, where's your can.

College Boy (sadly): About a mile down the road.

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Buck Stove & Range Co., St. Louis, founded in 1846, is to be liquidated, stockholders having voted that action. It is capitalized at $1,500,000 and its business has been between $1,000,000 and $1,500,000 annually. Pressure of competition and high taxes are given as reasons for this action.

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**Plenty Like Him**

Not long ago I was told of a bank which takes on a number of young men during the summer, and on their salary receipts is printed a legend something like this:

"Your salary is your personal business—a confidential matter—and should not be disclosed to anybody else."

One of the boys, in signing the receipt, added:

"I won't mention it to anybody. I am just as much ashamed of it as you are."

**Too Good**

Patient—Well, Doc, you sure kept your promise when you said you'd have me walking again in a month.

The Doctor (glowing)—Well, well, that's fine.

Patient—Yes, I had to sell my car when I got your bill.

---

It looks as though the Illinois convention for 1931 is going to be a rip snorter. The Chicago boys are already up to their ears in plans and discussions and they now have the national sheet metal convention coming to Chicago, too, so they are busy.

Not long ago three of the boys, Albert J. Wagner, Hans Starr, and John W. Thompson, members of the Associated Sheet Metal Employers of Chicago dropped in to get some information about convention planning. Mr. Wagner is one of the old timers. He used to contribute patterns to the ARTISAN way back in 1890 and 1893. Just think how far back that was. Before this editor was born in fact. Back in the days of coal ranges and parlor heaters. Yet the stove business can't really be said to be out of the picture for more than 50 per cent of the homes today are heated by stoves.

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**Ad Infinitum**

"Only yesterday," said Jones, who was discussing philanthrophy, "I refused a woman a small sum of money, and in consequence I passed a sleepness night. The tone of her reproachful voice never left me for a moment."

"Dear me, indeed a kind heart! Who was the woman?"

"My Wife."

# GRAVITY EXHAUST VENTILATION

# Toilet Ventilation in Old Buildings

*By* **PAUL R. JORDAN**
***The Paul R. Jordan Company***

NOT long ago we were discussing ventilating work with a contractor and the subject turned to the sales possibilities to be uncovered in old buildings. In this particular contractor's town there are numerous old buildings and before they can be used as offices or stores the city code demands that the old toilet rooms be ventilated in an approved manner.

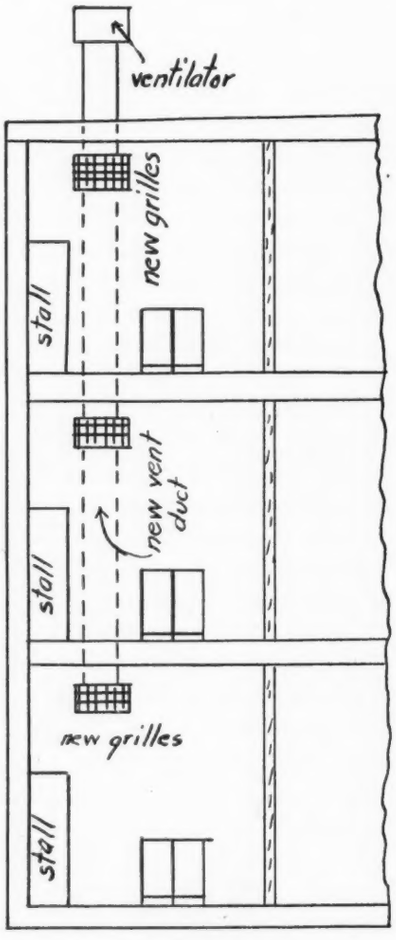
The ventilating contractors have each worked out their own system of ventilating these rooms, but results are frequently disappointing and costs exorbitant.

The discussion ended in our being asked how we would handle such work and sketches were given us showing how typical buildings are laid out.

We feel that here is a ventilating field which should offer wide awake ventilating contractors good possibilities for selling their services for practically every city has just such old buildings. We submitted the proposition to Paul R. Jordan of Indianapolis with the request that he give us the results of experience he has had in this field. His answer is as follows:

The method of ventilating toilet rooms in old buildings is dependent on so many things and is affected by so many individual conditions that it is best for the contractor to lay before his ventilator manufacturer the individual problem in each case together with as full a description as possible. However a few general principles can be laid down which will help the contractor in correctly describing the specific problem.

In the first place toilet ventilation must be handled by exhaust, never by intake. This means that the toilet room in comparison with the rest of the building must be an area of low pressure, that is that the flow of air must be toward the toilet and not away from it. Sometimes an outside window will help matters, other times it will do more harm than good. If the exhausting power is sufficient to cause a flow of air toward the toilet at all times, the window intake is not necessary and in all probability seepage around the sash will give all of the fresh air needed, and do it without nullifying the low pressure within the toilet room. By retaining this low pressure, the flow of air will be inward every time the door is opened, which is desirable and necessary.



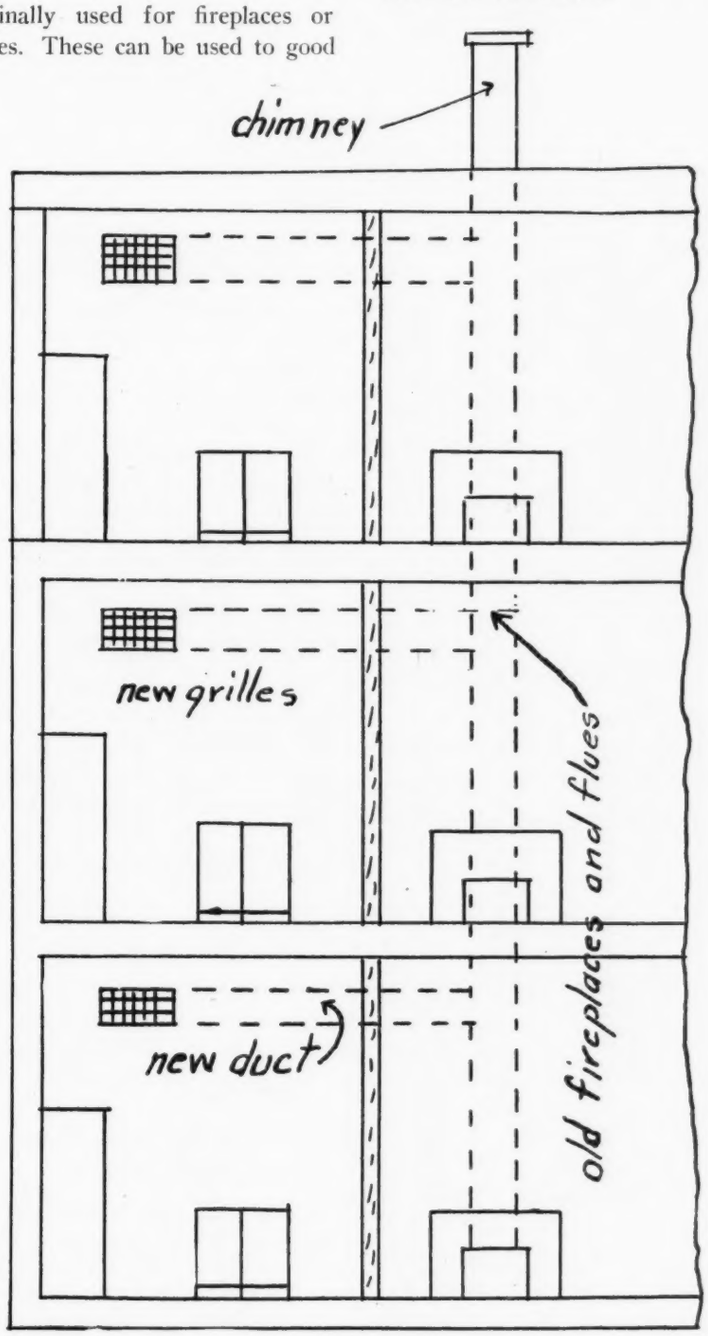

**This shows an approval method for installing complete duct work**

As to whether the toilet room will be an area of low pressure is not always a simple thing to work out. In the first place it must be ascertained as to whether or not there are any exhaust fans in anywise connected with the building. If there are, then fan exhaust will probably be necessary for the handling of the toilet situation. If there are not, then the suitability of gravity exhaust must be ascertained, taking into consideration the possibility of conflicting with other gravity elements. The most common conflicting gravity elements are elevator shafts and stairways. The stairways do not necessarily have to be open, as seepage around doors and the escape of air through the opening and closing of doors is usually sufficient to govern the situation.

In the case of a fan job, the fan must be of the proper design to operate against the necessary pressure. The fan manufacturer had better be consulted on this. In case there is no fan exhaust at any point in the building then the exhaust power of a gravity flue capped by an efficient ventilator will take care

of the situation, provided the flue is inside and is tight and properly installed. In some cases it may be possible to empty the flues into the roof space to be drawn off by one or two large ventilators. One ventilator is better than two for the handling of any one roof space under these circumstances. In any case the roof space must be absolutely air tight to be effective as a grouping chamber.

In these old buildings it often happens that there are old flues originally used for fireplaces or stoves. These can be used to good advantage where they are of sufficient capacity; however care must be taken not to hook up any one flue to two different floors. One flue will sometimes handle more than one toilet from the same floor, but not toilets from different floors. Another thing to be careful of is the use of an outside metal duct. This is very cold in the winter so that it will give practically no flue action and any gravity action inside of the building is likely to reverse the ventilation.




**In this system new ducts carry the air into old chimneys. Only rooms on one floor should use the same chimney.**

In the table of recommended air changes which I publish in my catalog, eight changes of air per hour is given for fair conditions, fifteen changes of air for bad or crowded conditions and thirty changes of air for extremely bad conditions. These recommendations are about correct. Note also on this same table the location of register openings is in the ceiling. This is quite important in toilet ventilation.

Referring to the particular problem sketched here; where new metal ducts are installed, the ducts should be partitioned so that a separate duct will run from each floor up to the ventilator. Also the ventilator should be of the rotary or of the fan type. In the case where the old fireplace flues are used, the fireplace openings must be stopped up, and if the flues are not partitioned they should be. Also the chimney should be capped either with a rotary ventilator or a fan ventilator. In the first case where the flue can be run straight to the ventilator, flue velocities of 300 feet per minute may be used on a gravity system, provided other conditions are average. In the second case where there is at least one right angle bend, a flue velocity of more than 200 feet should not be used on a gravity system.

It is not my intention to give the contractor the impression that he may safely step in and figure out a ventilation layout for toilets without enlisting he co-operation of the ventilator manufacturer. Such an impression would be misleading. However the contractor having in mind the general principles of toilet ventilation will be able to give his customer an idea of about what he has a right to expect both in the way of costs and results.

The sketches show some typical examples of these building's arrangements.

If some of you men have run up against similar work we invite you to write us how you worked out the system for ventilation. Also send us your sketches.

**"King" Ventilator**

From Schwarzkopf Sheet Metal Works, Waupaca, Wisconsin.

Can you tell us who makes the "King" Ventilator?

Ans. — King Ventilating Company, Owatonna, Minnesota.

**Steel Springs**

From Engberg Sheet Metal Works, Kearney, Nebraska.

Who makes steel spring ¼-inch wide by 26°?

Ans.—American Steel and Wire Company, 208 South La Salle Street, Chicago, Illinois.

**"Krebel" Vacuum System of Heating**

From Bridge and Beach Manufacturing Company, 4204 North Union Boulevard, St. Louis, Missouri.

We should like to know who makes the "Krebel" Vacuum System of Heating.

Ans.—Vapor Vacuum Heating Company, Otis Building, Philadelphia, Pennsylvania.

**"Parker" Metal Punch**

From Empire Furnace and Stove Repair Co., Inc., 793-797 Broadway, Albany, New York.

Can you tell us who makes the "Parker" Metal Punch No. OX, as we want to secure parts for it?

Ans. — Parker-Kalon Corporation, 200 Varick Street, New York City.

**Combination Coal and Kerosene Kitchen Range**

From Rose Sheet Metal Works, Fourth and South Carolina Streets, Louisiana, Missouri.

We should like to know who makes a combination kitchen range for coal and kerosene.

Ans.—As far as we know, no firm is making a range of this type now.

**Vacuum Furnace Cleaners**

From Moser Brothers, Sabetha, Kansas.

Please tell us who makes vacuum furnace cleaners.

Ans. — Brillion Furnace Company, Brillion, Wisconsin; National Super Service Company, Toledo Factories Building, Toledo, Ohio; B. F. Sturtevant Company, Hyde Park, Boston, Massachusetts, and Williamson Heater Company, Cincinnati, Ohio.

**Nickel-Plated Brass Machine Screws**

From Radio Units Company, P. O. Box 84, Salt Lake City, Utah.

Can you give us the name of a firm who manufactures nickel-plated brass machine screws, sizes No. 4 and No. 6?

Ans. — Lincoln Manufacturing Company, 3430 South Ashland Avenue, Chicago, Illinois.

**Tinplate Lacquered on One Side**

From J. E. Roberts, Muza Sheet Metal Works, Marshfield, Wisconsin.

Who makes tinplate lacquered on one side?

Ans.—Caspers Tin Plate Company, 3424 West 48th Place, Chicago, Illinois.

**"Silentair" Fan and Washer**

From E. C. Henry and Company, 1115 Park Avenue, Bay City, Michigan.

Can you tell us who makes the "Silentair" fan and washer.

Ans.—A. Gehri and Company, Tacoma, Washington.

**"Advance" Tinners' Snips**

From Ralph W. Poe, 44 White Court, Canton, Illinois.

Please tell me who makes the "Advance" tinners snips.

Ans.—Rupp Forged Shear Company, 1734-40 Columbus Road, Cleveland, Ohio.

**Furnace Vacuum Cleaner**

From E. J. French, 69 South Division Avenue, Grand Rapids, Michigan.

Who makes the large furnace vacuum cleaner which is referred to in an article that appeared in AMERICAN ARTISAN the latter part of 1929?

Ans.—This article appeared in the November 9, 1929, issue and referred to the Air-O-Vac Cleaner made by The Air-O-Vac Furnace Cleaning Company, 439 East Wood Place, Milwaukee, Wisconsin.

**Block Tin Pipe**

From Kimball Tin and Radiator Shop, Kimball, Nebraska.

Where can we secure block tin pipe for water soda fountains?

Ans.—Eagle-Picher Lead Company, 134 South LaSalle Street; Gardiner Metal Company, 1366 West Lake Street, and National Lead Company, 900 West 18th Street; all of Chicago.

**Allen Air Turbine Ventilator in Chicago**

From William Bros., 6840 South Racine Avenue, Chicago, Illionis.

Have the Allen Air Turbine Ventilator Company a Chicago office?

Ans.—Yes—at 53 West Jackson Boulevard.

**"Todhunter" Weathervane**

From E. Valkenaar, 4520 Irving Park Boulevard, Chicago, Illinois.

Can you tell me who makes the "Todhunter" weathervane?

Ans.—Todhunter Inc., 119 East 37th Street, New York City.

**Radiator Shields**

From Austin Linebaugh, 211 East First Street, Mishawaka, Indiana.

Please inform me who makes radiator shields.

Ans.—Beh and Company, 1140 Broadway, New York City; Hart and Cooley Manufacturing Company, New Britain, Connecticut; Thomas and Armstrong Company, London, Ohio, and Tuttle and Bailey Manufacturing Company, 441 Lexington Avenue, New York City.

**"Red Star" Oil Burner**

From W. F. Wahler, 3715 Elston Avenue, Chicago, Illinois.

Can you tell me who makes the "Red Star" oil burner for cook stoves.

Ans.—Detroit Vapor Stove Company, Detroit, Michigan.

**"Acme" Ball Bearing Lawn Mower**

From Reiche Brothers, 234-236 South Main Street, Naperville, Illinois.

Please tell us who makes the "Acme" ball bearing lawn mower.

Ans.—R. Hershel Manufacturing Company, Peoria, Illinois.

# ALUMINUM SHEETS

We now carry in Cleveland stock a full line of the finest quality Aluminum Sheets and Coils.

Also Aluminum Stretcher Leveled Auto Body Sheets, Plates and Coils for the Automobile Trade.

*Quick Mill Shipments*

# ENDURO K. A. 2 Stainless Sheets

The following gauges and sizes of Enduro K.A. 2 Stainless Sheets are in Cleveland stock for prompt shipment:

**14 to 24 gauge**
**24″ to 48″ wide**
**96″ and 120″ long**

Polished One Side

**Osborn's Improved Roofing Clip and Burr**

Osborn's Improved, Cadmium Plated, Roofing Clips and Burrs Are Correctly Designed to Anchor Corrugated Sheets to Steel Purlines. They are oval on the outside, flat on the inside and conform perfectly to both the corrugations of the sheets, and to the flat surfaces of the purlines.

WRITE FOR SAMPLE

## Copper and Zinc Sheets, Tin & Terne Plates

## Armco Galvanized and Enameling Sheets

## Cookley-K IMPORTED DAIRY TIN in Large Sheets

XXXX up to 36″ x 72″
D-XXXX up to 48″ x 96″

## GALVANNEALED SHEETS

All Regular Sizes Required by Sign Builders IN STOCK

THE J. M. & L. A.

# OSBORN CO

MANUFACTURERS ~ DISTRIBUTORS

DETROIT—CLEVELAND—BUFFALO

*"Everything Used in Sheet Metal Work"*

# NEW ITEMS *and* NEWS ITEMS
## *From and about the Manufacturers and Jobbers*

### Inland Steel Company Erects New Office Building at Indiana Harbor

A modern six story office building at the Inland Steel Company's Indiana Harbor, Indiana Works has just been completed. The building is an imposing structure, the tallest edifice in the Indiana Harbor district, and has outside dimensions of approximately 150 by 46 ft., each floor having a total area of about 6000 sq. ft.

In this new building will be the offices of the Works Manager, General Superintendent, Assistant General Superintendent, Production Manager, Time Department, Purchasing Department, Traffic Department, Works Auditing Department and Engineering Department.

The new Inland Steel Company office building.

### American Rolling Mill Takes Over Sheffield Steel Corporation

George M. Verity, chairman, and Charles R. Hook, president, the American Rolling Mill Company, and W. L. Allen, president, Sheffield Steel Corporation, announce that the directors of the American Rolling Mill Company and Sheffield Steel Corporation have successfully concluded negotiations for combining the two companies.

When effected, the combination of the two companies will add to the products of the American Rolling Mill Company merchant bars, billet and rail steel reinforcing bars, bolts, nuts, rivets, spikes, tie plates, oil field and railroad forgings and bar iron, barbed wire and nails, and will give to the American Rolling Mill Company immediate production at Kansas City of blue annealed sheets.

### Republic Steel Corp. Announces Appointment of New Officials

Executive sales appointments in the new Republic Steel Corporation have been announced by H. T. Gilbert, Vice President in Charge of Sales. A. E. Walker, former General Sales Manager of Republic Iron and Steel, becomes Assistant Vice President. J. M. Schlendorf, formerly Vice President in charge of Sales of Central Alloy Steel will assume the duties of Sales Manager of Alloy Steel Products. Norman Foy, Birmingham District Manager in the old Republic organization, becomes Sales Manager of Mild Steel Products with headquarters at Youngstown. Co-ordination of the various sales units is proceeding rapidly, according to Mr. Gilbert and will be completed very shortly.

The appointment of Harry Rhodehouse as General Traffic Manager of Republic Steel Corporation has just been announced. Mr. Rhodehouse held a similar position with the old Republic Iron and Steel Co. Mr. W. H. Ohl has been made Comptroller of the new corporation.

### Bryant Heater & Mfg. Co. Have New Handbook on Building Heating

The Bryant Heater & Manufacturing Company have a publication in the form of a descriptive handbook which will be of interest to readers. This is the Handbook on Heating Buildings with Bryant Gas Warm Air Furnaces, A. I. A File No. 30-b-1. It contains a complete description of the various Bryant Gas Warm Air Furnaces and explains in detail the best methods of figuring warm air heating installations and the application of this equipment to various sizes of installations.

### Milwaukee Corrugating Co. Now Mailing Semi-Annual Price List for Trade

The semi-annual MILCOR Price Lists are now in the hands of the 50,000 jobbers, dealers and salesmen.

This new price list contains 128 pages of Milcor products and prices.

One of the new, interesting and practical items illustrated and priced in this new price book edition is the MILCOR Milk and Package Receiver.

Another new product is the Square Long Sweep Elbow made either of galvanized or copper.

# The Improved Hyro "UNXLD" Damper Quadrant

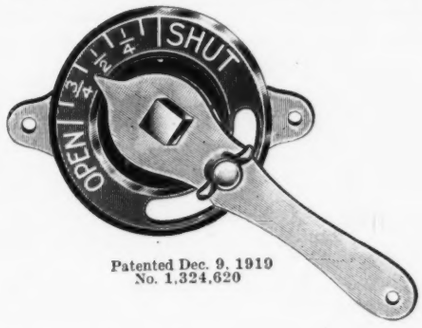
***A New Quadrant for regulating dampers in hot and cold air ducts, blower systems, etc., with these improvements:***

**LARGER BEARING SURFACE.** The new type quadrant provides a much larger bearing surface for the rod, eliminating the possibility of the rod slipping out, and also does away with the objectionable rattling of the damper.

**MALLEABLE IRON HANDLE.** The handle of the new quadrant is made of malleable iron. It is more rigid than the old handle and makes a much neater installation.

**REDESIGNED FRAME.** The frame of the ⅜" quadrant is smaller than that of the old model. This size was determined to be the most practical for regulating dampers that require a ⅜" quadrant. The frame of the ½" quadrant will remain the same size.

## HYRO DIAL DAMPER REGULATOR




Here is another practical and efficient device for regulating small and medium size dampers in hot and cold air ducts, blow pipes, etc. It was designed to meet the demand for a less costly damper regulator than our "Unxld" Damper Quadrant.

The Hyro Dial Damper Regulator is of very simple construction. It is easily and quickly attached to either curved or flat surfaces. It requires only two bolts or rivets to hold it absolutely rigid.

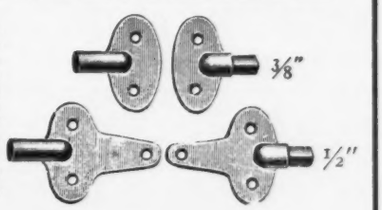
The graduated dial shows at a glance the exact position of the damper in the duct.

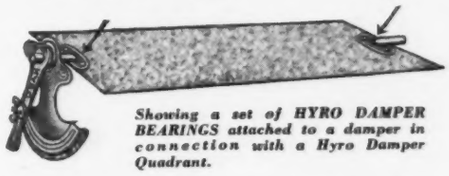
When tightened, the wing-nut locks the damper in the desired position, giving absolute control of the passage of air.

Made of steel to fit ⅜" square rod or Hyro Damper Bearings. Furnished in an electro-galvanized finish only.

## HYRO DAMPER BEARINGS

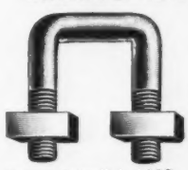
Used instead of rods on small and medium size dampers. Quickly attached. Made in two sizes—⅜" to fit ⅜" Damper Quadrants or Dial Damper Regulators and ½" to fit ½" Damper Quadrants. Furnished in galvanized finish only.



***Showing a set of HYRO DAMPER BEARINGS attached to a damper in connection with a Hyro Damper Quadrant.***

## HYRO DAMPER ROD CLIP



Patented April 4, 1922
No. 1,411,945

Offers a quick and easy means of fastening square rod to dampers.

Easy, because the rod is fastened firmly to the damper without driling—and consequent weakening of the rod. And quick, because the drilling operation is eliminated. Made for the following sizes of square rod: ⅜", ½", ⅝", ¾" and ⅞". Furnished in galvanized finish only.

***Showing a rod attached to a damper by two HYRO DAMPER ROD CLIPS in connection with a Hyro Damper Quadrant.***

## Other HYRO Time-and-Labor Saving DAMPER ACCESSORIES

# HYRO MANUFACTURING COMPANY, Inc.

**202 VARICK STREET NEW YORK**

# ~ MARKET QUOTATIONS ~

**AMERICAN ARTISAN is the only publication quoting Prices on Metals, Sheet Metal Equipment and Supplies, Warm Air Heating Supplies and Accessories, corrected bi-weekly. These quotations are not guaranteed but are obtained from reliable sources and reflect nation-wide market conditions at the time of going to press.**

***NOTE—These prices are Chicago Warehouse Prices to which must be added territory differentials***

## METALS

### PIG IRON

| | |
|---|---|
| Chicago Fdy., No. 2 | $18.50 |
| Southern Fdy. No. 2 | 18.01 |
| Lake Superior Charcoal | 23.04 to 27.04 |
| Malleable | 18.50 |

### FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

| | | | |
|---|---|---|---|
| IC | 20x28 | 112 sheets | $22.50 |
| IX | 20x28 | | 25.50 |
| IXX | 20x28 | 56 sheets | 14.50 |
| IXXX | 20x28 | | 15.50 |
| IXXXX | 20x28 | | 17.00 |

### TERNE PLATES

| | Per Box |
|---|---|
| IC 20x28, 40-lb. 112 sheets | $25.00 |
| IX 20x28, 40-lb. 112 sheets | 27.75 |
| IC 20x28, 25-lb. 112 sheets | 21.15 |
| IX 20x28, 25-lb. 112 sheets | 28.80 |
| IC 20x28, 20-lb. 112 sheets | 19.55 |
| IV 20x28, 20-lb. 112 sheets | 22.05 |

### "ARMCO" INGOT IRON PLATES

| | |
|---|---|
| No. 8 ga.—110 lbs. | $4.15 |
| 3/16 in.—100 lbs. | 4.05 |
| ¼ in.—100 lbs. | 3.85 |

### COKE PLATES

| | |
|---|---|
| Cokes, 80 lbs., base, 20x28 | $12.00 |
| Cokes, 90 lbs., base, 20x28 | 12.20 |
| Cokes, 100 lbs., base, 20x28 | 13.75 |
| Cokes, 107 lbs., base, IC, 20x28 | 12.75 |
| Cokes, 135 lbs., base, IX, 20x28 | 14.75 |
| Cokes, 155 lbs., base, 2X, 56 sheets | 8.50 |
| Cokes, 175 lbs., base, 3X, 56 sheets | 9.35 |
| Cokes, 195 lbs., base, 4X, 56 sheets | 10.25 |

### BLUE ANNEALED SHEETS

| | |
|---|---|
| Base 10 ga. per 100 lbs. | $3.35 |
| "Armco" 10 ga. per 100 lbs. | 4.15 |

### ONE PASS COLD ROLLED BLACK

| | |
|---|---|
| No. 18-20 per 100 lbs. | $3.85 |
| No. 22 per 100 lbs. | 4.00 |
| No. 24 per 100 lbs. | 4.05 |
| No. 26 per 100 lbs. | 4.15 |
| No. 27 per 100 lbs. | 4.20 |
| No. 28 per 100 lbs. | 4.30 |

### GALVANIZED

| | |
|---|---|
| No. 16 per 100 lbs. | $4.10 |
| No. 18 per 100 lbs. | 4.20 |
| No. 20 per 100 lbs. | 4.40 |
| No. 22 per 100 lbs. | 4.45 |
| (Standard differentials on extras to apply) | |
| No. 24 per 100 lbs. | $4.60 |
| No. 26 per 100 lbs. | 4.85 |
| No. 27 per 100 lbs. | 4.95 |
| No. 28 per 100 lbs. | 5.10 |
| "Armco" 24 per 100 lbs. | 6.15 |

### BAR SOLDER

| | |
|---|---|
| Warranted 50-50 per 100 lbs. | $22.50 |
| 45-55 per 100 lbs. | 21.50 |
| 48-52 per 100 lbs. | 20.50 |
| Plumbers' per 100 lbs. | 18.00 |

### ZINC

| | |
|---|---|
| In Slabs | $5.50 |

### SHEET ZINC

| | |
|---|---|
| Cask Lots (600 lbs.) | $12.00 |
| Sheet Lots (100 lbs.) | 13.00 |

### BRASS

| | |
|---|---|
| Sheets, Chicago base | 18¾c |
| Tubing, brazed, Chicago base | 26¼c |
| Tubing, seamless, Chicago base | 23¾c |
| Wire, Chicago base | 19¼c |
| Rods, Chicago base | 17¼c |

### COPPER

| | |
|---|---|
| Sheets, Chicago base | 21¾c |
| Tubing, seamless, Chicago base | 24 c |
| Wire, plain rd., 8 B. & S. Ga. and heavier | 14 c |

### LEAD

| | |
|---|---|
| American Pig | $6.50 |
| Bar | 8.50 |

### TIN

| | |
|---|---|
| Bar Tin per 100 lbs. | $39.00 |
| Pig Tin per 100 lbs. | 38.00 |

## SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES

### ASBESTOS

| | |
|---|---|
| Paper up to 1/16 | 6c per lb. |
| Roll board | 7½c per lb. |
| Mill board 3/32 to ⅛ | 7½c per lb. |
| Corrugated paper (250 sq. ft. per roll) | $6.00 per roll |

### ASBESTOS SEGMENTS

| | |
|---|---|
| 8 in. per 100 sets | $7.30 |
| 9 in. per 100 sets | 8.30 |
| 10 in. per 100 sets | 9.30 |
| 12 in. per 100 sets | 10.50 |

### CEMENT FURNACE

| | |
|---|---|
| American Seal, 5-lb. cans, net | $0.40 |
| American Seal, 10-lb. cans, net | 0.80 |
| American Seal, 25-lb. cans, net | 2.00 |
| Pecora per 100 lbs. | 7.50 |

### CLIPS

**Damper**

| | |
|---|---|
| No-Rvet Steel, with tail pieces, per gross | $9.50 |
| Rivet Steel, with tail pieces, per gross | 7.50 |
| Tail pieces, per gross | 2.40 |

### COPPER FOOTING

| | |
|---|---|
| Copper Footing | 34% |

### CORNICE BRAKES

**Chicago Steel Bending**

| | |
|---|---|
| Nos. 1 to 6B | Net |

### CUT-OFFS

Cal., plain, round or cor. rd.

| | |
|---|---|
| 26 gauge | 30% |
| 28 gauge | 35% |

### DAMPERS

**Yankee Hot Air**

| | |
|---|---|
| 7 inch, doz. | $1.60 |
| 8 inch, doz. | 2.20 |
| 9 inch, doz. | 2.60 |
| 10 inch, doz. | 2.80 |
| 12 inch, doz. | 3.50 |
| 14 inch, doz. | 5.00 |

### EAVES TROUGH

| | |
|---|---|
| Galv. Crimpedge, crated | 75-10% |
| Zinc, "Barnes" | 60% |

### ELBOWS

**Conductor Pipe**

Galv. plain or corrugated, round flat Crimp.

| | |
|---|---|
| 28 gauge | 60% |
| 26 gauge | 45% |
| 24 gauge | 15% |

**Galv. Terne Steel**

Plain Rd. and Rd. Corr.

| | |
|---|---|
| 28 gauge | 60% |
| 26 gauge | 45% |
| 24 gauge | 15% |

**Square Corrugated**

| | |
|---|---|
| 28 gauge | 50% |
| 26 gauge | 35% |

**Portico Elbows**

Standard Gauge Conductor Pipe, plain or corrugated.

| | |
|---|---|
| Not nested | 70 & 5% |
| Nested solid | 70 & 5% |

**Sq. Corr., A. & B. & Octagon**

| | |
|---|---|
| 28 gauge | 50% |
| 26 gauge | 35% |

**Portico**

| | |
|---|---|
| 1, 1¼, 1½ inch | 45% |

**Copper**

| | |
|---|---|
| 16 oz. all designs | 45% |

**Zinc**

| | |
|---|---|
| All styles | 60% |

### ELBOWS—Stove Pipe

| 1-piece Corrugated, Uniform Blue "Milcor" No. 28 Gauge. | Doz. |
|---|---|
| 5 inch | $1.15 |
| 6 inch | 1.26 |
| 7 inch | 1.75 |

**Special Corrugated**

| | |
|---|---|
| 6 inch | $1.00 |
| 7 inch | 1.60 |

**Adjustable—Uniform Blue**

"Milcor" No. 28 Gauge, Uniform Blue.

| | |
|---|---|
| 5 inch | $1.60 |
| 6 inch | 1.75 |
| 7 inch | 2.10 |

**WOOD FACES**—60% off list.

### FIRE POTS

**Geo. W. Diener Mfg. Co.**

| | Each |
|---|---|
| No. 02 Gasoline Torch, 1 qt. | $5.13 |
| No. 9250, Kerosene, or Gasoline Torch, 1 qt. | 6.50 |
| No. 10 Tinner's Furnace Square tank, 1 gal. | 11.20 |
| No. 15 Tinner's Furnace Round tank, 1 gal. | 10.70 |
| No. 21 Gas Soldering Furnace | 8.00 |
| No. 110 Automatic Gas Soldering Furnace | 10.50 |

### GLASS

| | |
|---|---|
| Single and Double Strength, A, all brackets | 85% |
| Single and Double Strength, B, all brackets | 87% |

### HANGERS

**Conductor Pipe**

| | |
|---|---|
| Milcor Perfection Wire | 25% |
| Milcor Triplex Wire | 10% |

**Eaves Trough**

| | |
|---|---|
| Milcor Steel (galv. after forming) from list | 45% |
| Milcor Selflock E. T. Wire, List | 10% |

### HOOKS

**Conductor**

| | |
|---|---|
| "Direct Drive" Wrought Iron for wood or brick | 15% |

### MITRES

**Galvanized Steel Mitres**

| | |
|---|---|
| 28 gauge | 70 |
| 26 gauge | 60-20 |

### PASTE

**Asbestos Dry Paste**

| | |
|---|---|
| 200-lb. barrel | $15.00 |
| 100-lb. barrel | 7.75 |
| 50-lb. pail | 4.50 |
| 25-lb. pail | 2.50 |
| 10-lb. bag | 1.20 |
| 5-lb. bag | 0.60 |

### PIPE

**Galvanized**

| | |
|---|---|
| Crated and nested (all gauges) | 75-7½% |
| Crated and not nested (all gauges) | 75-2½% |

**Furnace Pipe**

| | |
|---|---|
| Double Wall Pipe and Fittings | 60% |
| Single Wall Pipe, Round Galvanized Pipe | 60% |
| Galvanized and Tin Fittings | 60% |

**Lead**

| | |
|---|---|
| Per 100 lbs. | $12.50 |

Stove Pipe
"Milcor" "Titelock" Uniform Blue Stove

| | |
|---|---|
| 28 gauge, 5 inch U. C. nested | $11.00 |
| 28 gauge, 6 inch U. C. nested | 12.00 |
| 28 gauge, 7 inch U. C. nested | 14.00 |
| 30 gauge, 5 inch U. C. nested | 10.25 |
| 30 gauge, 6 inch U. C. nested | 11.00 |
| 30 gauge, 7 inch U. C. nested | 13.00 |

**T-Joint Made Up**

| | |
|---|---|
| 6 inch, 28 ga. per doz. | $3.40 |

### REGISTERS AND FACES

**Floor Registers**

| | |
|---|---|
| Except Cast Iron | 40 & 10% |
| Cast Iron | 20% |

**Baseboard**

| | |
|---|---|
| 2-Piece | 40 & 10% |
| 1-Piece | 40-10 & 20% |

**Adjustable Ventilators**

| | |
|---|---|
| Adjustable Cold Air Faces | 40 & 10% |
| Adjustable Ventilators | 40 & 10% |

### RIDGE ROLL

| | |
|---|---|
| Galv. Plain Ridge Roll, b'dld | 75-15-5% |
| Galv., Plain Ridge Roll, crated | 75-15% |

### SCREWS

**Sheet Metal**

| | |
|---|---|
| 7, ¼x⅛, per gross | $0.52 |
| No. 10, ⅜x3/16, per gross | 0.68 |
| No. 14, ⅜x¼, per gross | 0.83 |

### SHEARS, TINNERS' AND MACHINISTS'

| | |
|---|---|
| Viking | $22.00 |

**Lennox Throatless**

| | |
|---|---|
| No. 18 | 35% |
| Shear blades | 10% |
| (f. o. b. Marshalltown, Iowa.) | |

### SHOES

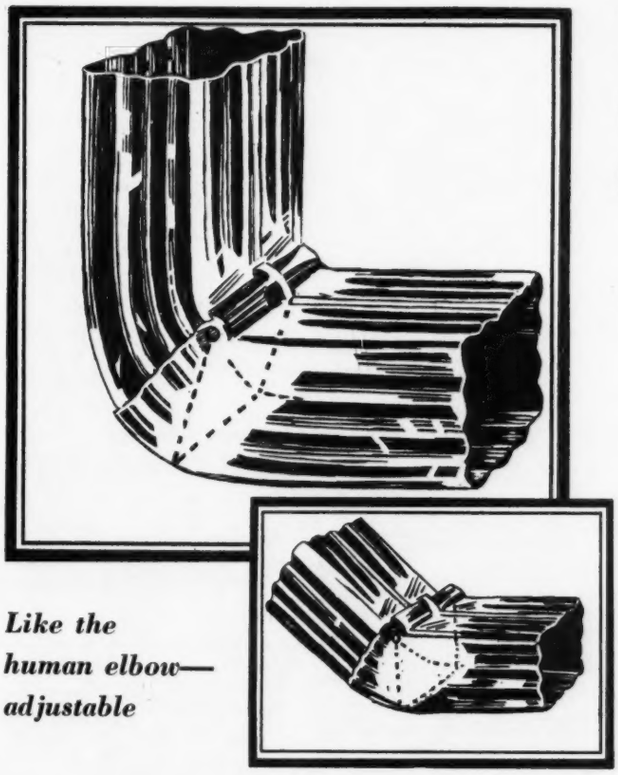
| | |
|---|---|
| Galv. 28 Gauge, Plain or Corrugated, round flat crimp | 60% |
| 26 gauge, round flat crimp | 45% |
| 24 gauge, round flat crimp | 15% |

### SNIPS, TINNERS'

| | |
|---|---|
| Milcor | Net |

### VENTILATORS

| | |
|---|---|
| Standard | 30 to 40% |
| Milcor | Net |



*Like the human elbow—adjustable*

# You have been waiting for this *adjustable* downspout elbow—

YOU have been waiting for this adjustable downspout elbow.

The Master adjustable elbow is a time and labor saver. This patented elbow can be adjusted to any degree of pitch between 15 and 90°. No tools are needed. The patented riveted joint permits you to connect gutter and downspout in a few seconds. The most revolutionary time and labor saver of recent years.

***Write for complete details today***

## APEX GUTTER HANGER CORPORATION

15 MOORE STREET
NEW YORK CITY

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# ROCKFORD

**Brakes—Crimpers**
**Beaders**
**Electric Drills**
**Hand Tools**

***24 Hour Service***

ROCKFORD SHEET STEEL COMPANY, Rockford, Ill.

## METAL TOOLS

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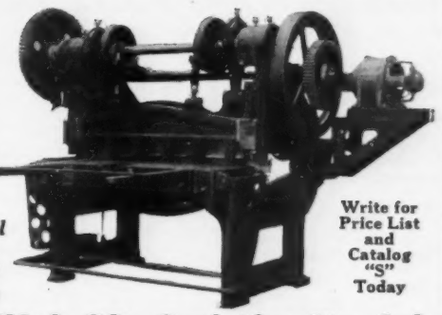
## BERTSCH POWER SHEAR

BELT OR MOTOR DRIVE

Takes lightest sheets to Heaviest Plates

*Built in all Standard Sizes and Capacities*



Write for Price List and Catalog "S" Today

**BERTSCH & CO., Cambridge City, Ind.**

---

The "Torrid" Furnace is designed to give a tremendous amount of heat, much more than that furnished by the ordinary tinner's furnace.

A fuel saver and generating machine of the finest quality made at the price.

**GEO. W. DIENER MFG. CO.**
404 North Monticello Ave. Chicago

---

*Specify*

## ÆOLUS IMPROVED VENTILATORS

ÆOLUS Improved Double Syphon Ventilators give 10% more power than formerly according to Armour Institute Tests.

**ÆOLUS DICKINSON**
*Industrial Division of Paul Dickinson, Inc.*
3332-52 South Artesian Avenue
Chicago, Ill.

# BUYERS' DIRECTORY

### Air Cleaners
Meyer & Bro. Co., F., Peoria, Ill.

### Aluminum Sheets
J. M. & L. A. Osborn Co., Cleveland, Ohio

### Blast Gates
Berger Bros. Co., Philadelphia, Pa.

### Blowers—Furnace
American Machine Products Co., Marshalltown, Iowa
Brundage Co., Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
Warm Air Furnace Fan Co., Cleveland, Ohio

### Bolts—Stove
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Brakes—Bending
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Brakes—Cornice
Dreis & Krump Mfg. Co., Chicago, Ill.

### Brass and Copper
American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Copper & Brass Research Association, New York, N. Y.
Revere Copper & Brass, Rome, N. Y.

### Bronze
Revere Copper & Brass, Rome, N. Y.

### Cans—Garbage
Diener Mfg. Co., G. W., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

### Castings—Malleable
Fanner Mfg. Co., Cleveland, Ohio

### Ceilings—Metal
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Chaplets
Fanner Mfg. Co., Cleveland, Ohio

### Cleaners—Vacuum
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

### Copper
American Brass Co., Waterbury, Conn.
Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.
Rockford Sheet Steel Co., Rockford, Ill.

### Cornices
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Cut-offs—Rain Water
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Dampers—Quadrants—Accessories
Eller Mfg. Co., Canton, Ohio
Hart & Cooley Co., Holland, Mich.
Howes Co., S. M., Boston, Mass.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., New York, N. Y.

### Dampproofings
Lastik Products Corp., Pittsburgh, Pa.

### Damper Regulators
Sheer Co., H. M., Quincy, Ill.

### Diffuser—Air Duct
Aeolus-Dickinson Co., Chicago, Ill.

### Drills—Electric
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
J. M. & L. A. Osborn Co., Cleveland, Ohio

### Drive Screws—Hardened Metallic
Parker-Kalon Corp., 200 Varick St., New York

### Dust Eliminator
Dustless Ash Co., Muskegon, Mich.

### Eaves Trough
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Rockford Sheet Steel Co., Rockford, Ill.

### Elbow and Shoes—Conductor
Apex Gutter Hanger Corp., New York, N. Y.
Barnes Metal Products Co., Chicago, Ill.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Rockford Sheet Steel Co., Rockford, Ill.

### Fittings—Conductor
Barnes Metal Products Co., Chicago, Ill.
Braden Mfg. Co., Terre Haute, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Flue Thimbles
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Fluxes—Soldering
Kester Soldering Co., Chicago, Ill.

### Furnace Cement
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Eller Mfg. Co., Canton, Ohio
Lastik Products Corp., Pittsburgh, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Furnace Cement—Liquid
Technical Products Co., Pittsburgh, Pa.

### Furnace Chain
Hart & Cooley Co., Holland, Mich.

### Furnace Cleaners—Suction
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

### Furnace Fans
A-C Mfg. Co., Pontiac, Ill.
Brundage Co., The, Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
Robinson Co., A. H., Massillon, Ohio
Warm Air Furnace Fan Co., Cleveland, Ohio

### Furnace Paste
Western Mineral Products Co., Omaha, Neb.

### Furnace Pokers
Fanner Mfg. Co. Cleveland, Ohio

### Furnace Pulleys
Hart & Cooley Co., Holland, Mich.

### Furnace Regulators
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Sheer Co., H. M., Quincy, Ill.
White Mfg. Co., Minneapolis, Minn.

### Furnace Rings
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Milwaukee Corrugating Co., Milwaukee, Wis.

### Furnace Switch—Automatic
Payne Furnace & Supply Co., Beverly Hills, Cal.
Robinson Co., A. H., Massillon, Ohio

### Furnaces—Gas
Calkins & Pearce, Columbus, Ohio
Payne Furnace & Supply Co., Beverly Hills, Cal.
Robinson Co., A. H., Massillon, Ohio
Rudy Furnace Co., Dowagiac, Mich.
Wise Furnace Co., Akron, Ohio

### Furnaces—Warm Air
Agricola Furnace Co., Gadsden, Ala.
American Furnace Co., St. Louis, Mo.
The Beckwith Co., Dowagiac, Mich.
Brillion Furnace Co., Brillion, Wis.
Farris Furnace Co., Springfield, Ill.
Forest City-Walworth Run Fdy., Cleveland, Ohio
Fox Furnace Co., Elyria, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess Warming & Ventilating Co., Chicago, Ill.
Langenberg Mfg. Co., St. Louis, Mo.
London Furnace Co., London, Ohio
Lennox Furnace Co., Marshalltown, Iowa
Syracuse, N. Y.
May Fiebeger Furnace Co., Newark, Ohio
Meyer Furnace Co., The., Peoria, Ill.
Midland Furnace Co., Columbus, Ohio
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Payne Furnace & Supply Co., Beverly Hills, Cal.
Premier Warm Air Heater Co., Dowagiac, Mich.
Peerless Foundry Co., Indianapolis, Ind.
Richardson & Boynton Co., New York, N. Y.
Robinson Co., A. H., Massillon, Ohio
Rudy Furnace Co., Dowagiac, Mich.
Standard Fdy. & Furnace Co., De Kalb, Ill.
Success Heater Mfg. Co., Des Moines, Iowa
Schwab & Sons Co., R. J., Milwaukee, Wis.
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Wise Furnace Co., Akron, Ohio

### Gas Burning Attachments
Munkel-Rippel Heating Co., Columbus, Ohio

### Grilles
Auer Register Co., Cleveland, Ohio
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Independent Register & Mfg. Co., Cleveland, Ohio

### Guards—Machine and Belt
Harrington & King Perforating Co., Chicago, Ill.

### Handles—Boiler
Berger Bros. Co., Philadelphia, Pa.

### Handles—Soldering Iron
Hyro Mfg. Co., New York, N. Y.

### Handles—Furnace Door
Fanner Mfg. Co., Cleveland, Ohio

### Hangers—Eaves Trough
Apex Gutter Hanger Corp., New York, N. Y.
Berger Bros. Co., Philadelphia, Pa.
Chase Brass & Copper Co., Waterbury, Conn.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Heat Regulation Systems
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
Sheer Co., H. M., Quincy, Ill.
White Mfg. Co., Minneapolis, Minn.

### Heaters—Cabinet
Fox Furnace Co., Elyria, Ohio
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Waterman-Waterbury Co., Minneapolis, Minn.

### Heaters—Combination Water
Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

### Heaters—Domestic Hot Water
Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

### Heaters—School Room
Meyer Furnace Co., The, Peoria, Ill.
Western Steel Products Co., Duluth, Minn.
Waterman-Waterbury Co., Minneapolis, Minn.

### Humidifiers
Automatic Humidifier Co., Cedar Falls, Iowa
Diener Mfg. Co., G. W., Chicago, Ill.
Meyer & Bro. Co., F., Peoria, Ill.
Sheer Co., H. M., Quincy, Ill.

### Lath—Expanding Metal
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Machines—Crimping
Bertsch & Co., Cambridge City, Ind.

### Machinery—Culvert
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.

### Machines—Tinsmith's
Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Iowa
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Whitney Mfg. Co., W. A., Rockford, Ill.

### Metals—Perforated
Harrington & King Perforating Co., Chicago, Ill.

### Miters
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Miters—Eaves Trough
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Braden Mfg. Co., Terre Haute, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Nails—Copper and Brass
Chase Brass & Copper Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.

(Continued on page 72)

# Rain-

*will not leak through its seams—*

# Snow-

*will not clog in the corner—*

# Sleet!

*will not force open its seams—*

YOU can charge more and your customers will gladly pay more for rain carrying equipment bearing the Quaker City trade mark.

As "Chic" Sale, the Specialist, would say, "and I'll tell you why."

Take the Quaker City Miter—there's a mighty fine piece of fabricating. It always takes specialists to study out the requirements of a product and build it accordingly.

The Quaker City Miter stands out from the rest because it's stronger and more practical in every way. Its seam is unusually wide—and the corner is reinforced—it *holds* but allows for expansion and contraction.

Besides its better design it is made only of the better materials—galvanized steel, Armco Iron, Toncan Metal and Copper. It comes neatly packed in cartons containing two dozens—any jobber will supply you, or write for catalog direct.

***Made by the makers of the "Quaker City" line of End Pieces, Outlets and Caps***

**BERGER BROS. COMPANY**

**229 to 237 Arch Street Philadelphia, Pa.**

*Mention AMERICAN ARTISAN in your reply—Thank you!*

# BUYERS' DIRECTORY

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### Nails—Hardened Masonry
Parker-Kalon Corp., New York, N. Y.

### Oil Burners
Crystal Oil Burner Corp., New York, N. Y.
McIlvaine Burner Corp., Evanston, Ill.

### Ornaments—Sheet Metal
Eller Mfg. Co. Canton, Ohio
Miller & Doing, Inc., Brooklyn, N. Y.
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City

### Paint
Connors Paint Mfg. Co., Wm., Troy, N. Y.

### Perforated Metals
Harrington & King Perforating Co., Chicago, Ill.

### Pipe and Fittings—Furnace
Eller Mfg. Co. Canton, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Peerless Foundry Co., Indianapolis, Ind.

### Pipe and Fittings—Stove
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City

### Pipe—Conductor
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City

### Punches
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
W. A. Whitney Mfg. Co., Rockford, Ill.

### Punches—Combination Bench and Hand
Hyro Mfg. Co., New York, N. Y.

### Punches—Hand
Hyro Mfg. Co., New York, N. Y.
W. A. Whitney Mfg. Co., Rockford, Ill.

### Putty—Stove
Connors Paint Mfg. Co., Wm., Troy, N. Y.

### Radiator Cabinets
Hart & Cooley Co., Holland, Mich.

### Ranges—Gas
The Beckwith Co., Dowagiac, Mich.
Mt. Vernon Furnace & Mfg. Co., Mt. Vernon, Ill.
Richardson & Boynton Co., New York, N. Y.

### Registers—Warm Air
Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run Foundries Co. Cleveland, Ohio
Hart & Cooley Co., Holland, Mich.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Register & Mfg. Co., Cleveland, Ohio
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City
Rock Island Register Co., Rock Island, Ill.
Symonds Register Co., St. Louis, Mo.

### Registers—Wood
American Wood Register Co., Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City

### Regulators—Heat
Minneapolis-Honeywell Regulator Co., Minneapolis, Minn.
H. M. Sheer Co. Chicago, Ill.
White Mfg. Co., Minneapolis, Minn.

### Ridging
American Rolling Mill Co., Middletown, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., LaCrosse, Kan. City

### Rivets—Stove
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Rods—Stove
Lamson & Sessions Co., Cleveland, Ohio

### Rolls—Forming
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.

### Roofing Cement
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Lastik Products Corp., Pittsburgh, Pa.

### Roof Paints
Lastik Products Corp., Pittsburgh, Pa.

### Roof—Flashing
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Milwaukee, Wis.

### Roofing—Iron and Steel
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Sons, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Roofing—Tin
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Taylor Co., N. & G., Philadelphia, Pa.

### Rubbish Burners
Hart & Cooley Co., New Britain, Conn.

### Schools—Sheet Metal Pattern Drafting
St. Louis Technical Institute, St. Louis, Mo.

### Schools—Warm Air Heating
St. Louis Technical Institute, St. Louis, Mo.

### Screws—Hardened Metallic Drive
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

### Screws—Hardened Self-Tapping, Sheet Metal
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

### Screens—Perforated Metal
Harrington & King Perforating Co., Chicago, Ill.

### Shears—Hand and Power
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
The Stanley Works, New Britain, Conn.
Viking Shear Co., Erie, Pa.

### Sheet Metal Screws—Hardened, Self-Tapping
Parker-Kalon Corp., 200 Varick St., New York

### Sheets—Alloy
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
International Nickel Co., New York, N. Y.

### Sheets—Black and Galvanized
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
National Association of Flat Rolled Steel Manufacturers, Cleveland, Ohio
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Taylor Co., N. & G., Philadelphia, Pa.

### Sheets—Iron
American Rolling Mill Co., Middletown, Ohio
Central Alloy Division, Republic Steel Corp., Youngstown, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Sheets—Tin
Taylor Co., N. & G., Philadelphia, Pa.

### Shingles and Tiles—Metal
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Sifters—Ash
Diener Mfg. Co., G. W., Chicago, Ill.

### Sky Lights
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Snips
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Solder—Acid Core
Kester Solder Co., Chicago, Ill.

### Solder—Self-Fluxing
Kester Solder Co., Chicago, Ill.

### Solder—Rosin Core
Kester Solder Co., Chicago, Ill.

### Solder
Eller Mfg. Co., Canton, Ohio
Kester Solder Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Soldering Coppers
Revere Copper & Brass, Rome, N. Y.

### Soldering Furnaces
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Specialties—Hardware
Diener Mfg. Co., G. W., Chicago, Ill.

### Stars—Hard Iron Cleaning
Fanner Mfg. Co., Cleveland, Ohio

### Statuary
Miller & Doing, Inc., Brooklyn, N. Y.

### Stove Pipe Reducers
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Tinplate
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

### Tools—Tinsmith's
Bertsch & Co., Cambridge City, Ind.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
The Stanley Works, New Britain, Conn.
Viking Shear Co., Erie, Pa.
Whitney Mfg. Co., W. A., Rockford, Ill.

### Torches
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

### Trade Extension
Copper & Brass Research Association
National Association of Flat Rolled Steel Manufacturers, Cleveland, Ohio
Sheet Steel Trade Extension Committee, Cleveland, Ohio

### Trimmings—Stove and Furnace
Fanner Mfg. Co., Cleveland, Ohio

### Vacuum Cleaner—Furnace
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio

### Ventilators
Aeolus Dickinson Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Paul R. Jordan & Co., Indianapolis, Ind.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

### Ventilators—Ceiling
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio

### Wood Faces—Warm Air
Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

TRADE MARK REGISTERED

# WHITNEY Lever PUNCHES

*The Choice of OVER 40,000 Satisfied Users*

## No. 1 Heavy Duty Punch

The punch for tough work. Length 34 inches. Weight 22 pounds, well distributed to correctly balance the tool. Capacity ⅜ inch hole through ¼ inch iron. Heavily reinforced for strains. Punches and dies in 14 sizes from 5/32 to 9/16 by 1/32 inch. Insertable pipe handles.

## No. 2 Punch

***Over 20 years the leader***

And this is the punch that made the Whitney Line famous. Length 23 inches. Weight 13 pounds. Depth of throat, 1-11/16 inch. Capacity, 5/16 inch through ¼ inch iron or equivalent. Extra punches and dies in 13 stock sizes, ⅛ to ½ inch by 1/32 inch. Also mades in 64ths special.

## No. 6 Skylight and Center Tank Flange Punch

Punches within ⅜ in. of corner of Angle Iron. Throat depth, 1¾ in. Throat opening width, ½ in. above die top. Length 26½ in. Weight, 10 pounds. Capacity, ¼ through 3/16 in. iron. Especially adapted for button punching. Punches and Dies—⅛ to 9/32 by 1/32nds. Equipped with 3 punches and 3 dies, also die adjusting key when shipped.

## Channel Iron Punch

***A Companion to No. 2 Punch***

Every part of the two Punches interchangeable. Length, 23 inches. Weight, 16½ pounds. Punches to center of 4 inch Channel Iron. Capacity, ¼ inch hole through ¼ inch iron. Same 13 sizes of extra punches and dies as used in No. 2 Punch. Also made in 64th sizes specially.

## No. 4 One Hand Tinner's Punch

Capacity, ¼ inch hole through 16 Gauge. Punches 1/16 inch to 17/64 inch by 1/64. Punch and Die stay in perfect alignment because side plates carry the strain. Has adjustable gauge to regulate holes from edge.

## W. A. WHITNEY MFG. CO.

**636 Race Street** **Rockford, Ill.**

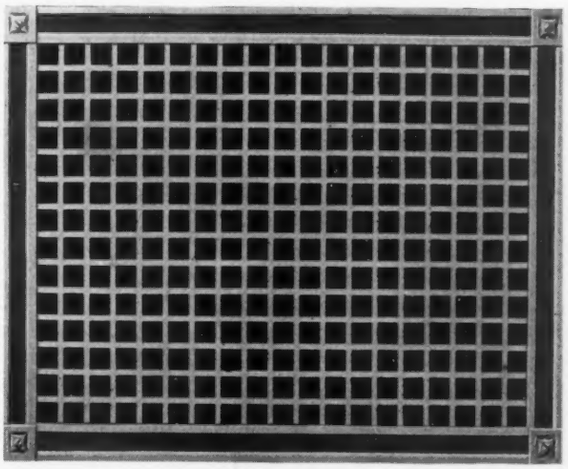
***Ask Your Jobber for*** ***Punches and Tools***

TRADE MARK REGISTERED

# Grilframe

(Trade Mark)

## The NEW Grille Construction



# "Grilframe"

***creates new standards of beauty convenience and economy—***

**"Grilframe" is the trade-marked name of a new grille construction (patents applied for). It makes possible 48 hour service on assembled and finished grilles of any size and *in a wide choice of designs. The completed "Grilframe" is extremely rugged and beautiful yet surprisingly economical.***

**Shipments are made from our factory or from distributors established in various cities throughout the country who assemble, finish when required, and ship immediately. Write us for the name of distributor nearest you.**

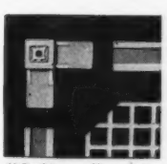
***Send for our 24-page "Grilframe" booklet which illustrates and describes this new and better method.***

**We will consider applications from distributors for unassigned territories. Only stock required consists of grille sheets 4′ x 10′, frame strips in 12′ lengths and the die cast corners. No special equipment required to assemble "Grilframe."**

## The Harrington & King Perforating Company

**5649 Fillmore Street - - Chicago, Ill.**

**New York Office: 114 Liberty Street**



"Grilframe" parts ready for assembly (Front view)

Corners inserted, grille clipped (Back view)

Grille secured to frame with lug (Back view)

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# WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE for three insertions.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired, and must reach our office ten days prior to date of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines—employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

## BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddie Company, Marshfield, Wis.

---

Partner Wanted—I am looking for a good, honest man who is willing to work with me, pull together and help me make money in the sheet metal and furnace business. The hardware people with whom I am now associated are willing to sell out but I haven't enough capital. Would require about $2,000.00. It means an investment of $2,000 for half interest I am a hard worker, and partner must be willing to work as I do, taking the same privileges. Address S-521, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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For Sale—Business and home, Illinois city of 100,000. Good chance for hustler. Corner lot 50x150, alley in rear. 5 room house. Business bldg. 22x52. Two stores, upper has shop, full set tinners tools and tin stock. Lower floor hardware store and stock and garage. Selling on account of age. $7000.00—excellent terms. Address S522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

---

For Sale—Plumbing and tin shop in central Alberta. Building on main street 25x30 ft., two story, with 6 living rooms above. Sewer just installed in town. Will take $2000.00 cash for building and tools. This is a snap for a man looking for a good opening. Address C. E. Hannay, P. O. Box 461, Stettler, Alberta, Canada. R522

---

Will sell very reasonably, tin and plumbing shop and warm air heating in one of the best towns in southwestern Minnesota. Doing a nice business but ill health forces me to sell. Address M522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

---

For Sale—Well equipped plumbing, heating and sheet metal shop. Only shop in town of 1600 population. Centrally located. Six good size living rooms in connection. Good chance for a hustler. Address P522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## BUSINESS CHANCES

For Sale—Old established furnace and sheet metal business in city of 10,000 population in the Northwest. Sold 320 furnaces in the past six years. Will take $5,000 cash to handle, or will accept good security for part of this. No trades. Address H-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

---

For Sale—Tin shop, roofing and furnace business. Good trade, located on west side of Chicago. Fully equipped. Offer very reasonable. Selling on account of age. Address O522, AMERICAN ARTISAN, 139 N. Clark St., Chicago. Ill.

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Wanted to Buy—Small sheet metal shop in Kansas or Oklahoma, or go in as working partner. Can furnish best of references. Address R-521. AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## SITUATION WANTED

Some Furnace Manufacturer of prominence is looking for a young man of 26 interested in the betterment of the industry. I am a high school graduate with 8 years of experience in the Sheet Metal and Furnace work, something with a future. Not afraid of work. Best of references and will go anywhere. Address L522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation wanted by combination man, plumber and sheet metal worker experienced in plumbing, installing and jobbing, also furnaces and oil burners. Wish to connect with hardware store with shop in small town. Young, married, reliable and employed but want to make a change. Year around job. Address H522. AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Position wanted by experienced furnace and specialty salesman who personally knows and has sold most of the largest furnace dealers and jobbers in Iowa. Young married man 30 years of age and own my own home. Centrally located in Iowa. Can furnish best of references. Address J522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation Wanted—Furnace man and sheet metal worker. Can estimate, layout and sell jobs. Have had some plumbing, hot water and steam experience. Have worked at the trade twenty-five years. Married and strictly sober. Can come at once. Address Y-521, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation Wanted—By all around sheet metal worker. Can handle any branch of the trade such as cornice, skylight, ventilation and hot air heating. Can also make estimates and take care of shop. Middle aged, sober and steady. Will go anywhere. Address C-522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation Wanted—By all around sheet metal worker and furnace man. Want a year around job. Will connect with shop where owner wants to sell out or retire next year. Habits and health o.k. Midwestern states preferred. Address Z-521, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Combination plumber, fitter and tinner would like to get in touch with hardware company that can use a steady, reliable man of this kind. Can lay out and estimate all branches of this line with an interest in view. Address B-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## SITUATION WANTED

Situation wanted by all around tinner, furnace heating a specialty. Experienced at plumbing and hardware store work. Would accept position anywhere west of Chicago. Please state kind of work you have and salary paid for permanent situation. Address W522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation Wanted—Thoroughly reliable experienced heating man and salesman for furnaces, fittings and good installations. 20 years' experience in the furnace heating game. Clean record, references and car. Illinois or Ohio preferred. Address E-522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Position wanted by experienced sheet metal worker on in and outside work, furnace work and general jobbing. Please state wages and working conditions. Address G522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation wanted by all around man with 28 years' of experience in tinning, plumbing, steel ceilings and all kinds of heating, etc. Wish position in Wisconsin. Address K522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Position Wanted—Heating, ventilating, blowpiping or mill work. Twenty-two years at the trade. Best of reference on sheet metal work. Address B-522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Situation Wanted—By all around sheet metal worker. Can handle any branch of the trade such as cornice, skylights, ventilation and hot air heating. Address T. W. Babb, 112 East Fourteenth St., Wichita, Kansas. D-522

## HELP WANTED

Wanted at Once—Ten experienced plumbing and tinning men to work as district managers, that are willing to invest from $500 to $1,000 in our company. We are opening shops in southern Illinois, Kentucky and southeastern Missouri. A real business opportunity. Address Independent Supply Co., Inc., West Frankfort, Ill. Y-522

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Wanted—Sheet metal worker under 50 years of age. Must be good on furnace and gutter work and also have some knowledge of plumbing. This is a small town of 800 and 60 miles from Chicago. State age, experience and wages wanted in first letter. Address X-522, AMERICAN ARTISAN, 139 N. Clark St., Chicago.

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Wanted—Sheet metal worker who is good on kitchen equipment work. Must be able to turn out first-class work in Monel and other noncorrosive metals and must be thoroughly familiar with welding of same. Address A-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Wanted—Salesmen who call on furnace installers and jobbers east of the Missouri river, to carry line of mineral paste that has proven a sales builder and repeats orders. Satisfactory commission on all orders. Write Western Mineral Products Co., Omaha, Neb. Z-522

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Wanted—First class sheet metal worker for copper marquis work, also one ventilating man. One dollar per hour. Give full particulars as to experience. Address T522, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## TOOLS AND MACHINES

For Sale—1 No. 737 Pexto Notching Machine complete with stand. 1 No. 653 Pexto 21" Double Seaming Machine with stand. The above in excellent condition, very slightly used. Like new. Write for prices. Address T-521, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale or Trade—One Chicago Elbow Machine complete with motor. Practically new. Capacity 5" to 36". 24 gauge or lighter. Makes an elbow in two minutes. Write for complete information to The Munkel-Rippel Heating Co., 569 N. 4th St., Columbus, Ohio. F522

For Sale—One power adjustable machine for making galvanized rolled roofing and valley tin. In good condition and price is right. Address W-521, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

I have several bench machines that I do not need. If interested, write for list. Address S. E. Ethridge, 1103 Denison St., Little Rock, Ark. C-523

Wanted to Buy—30" bar folder and 30" squaring shears. Address Kerstens Tin Shop, 1511 North 8th St., Sheboygan, Wis. X-521

## MISCELLANEOUS

For Sale—Hot Water Heating system. Installed four years. 4-22 W Arco Boiler, Four American Radiator Co., peerless plan radiators, Thrush System. Six sets of Crane Packless Valves, Basement Expansion Tank, pipe, fittings and pipe covering. All in A-1 condition. Will sell all or any part of it. Address Moser Brothers, Sabetha, Kansas. P-521

For Sale—Rock Island wall registers and boxes, as good as new, at a great sacrifice. Going out of the furnace business. Send for list and price. Address D-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## BOOKS

**The Revised Edition of the New Metal Worker Pattern Book by Kittridge and Associates is one book that should be in every shop. As a reference book alone it is indispensible. Over 500 9x11-inch pages with 895 illustrations. It covers the principles underlying practically every problem that is likely to come up in daily practice. Beginning with the selection and use of drawing tools, the author explains linear and geometrical drawing so clearly that one who has had nop revious knowledge of arithmetic or drawing may understand these essentials and apply them. The most approved methods of pattern cutting are also given in the course of the work... Price, $6.00, postpaid. Order from the Book Dept., AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.**

Here are the two books that most sheet metal workers and contractors classify as the most complete books on Sheet Metal Pattern Cutting. The Universal Sheet Metal Pattern Cutter, Vol. 1, deals with every phase of inside work, including Heating, Ventilating, Blower and Exhaust Piping Connections, Marine Sheet Metal Work, Automobile Sheet Metal Work, Machinery and Belt Guards, etc., Mensuration applied to Sheet Metal Work, etc., with many features of construction and Labor-Saving Methods are also given in detail.

Vol. 2 deals with every form of Outside and Architectural Sheet Metal Work. A treatise on Drawing, Full Size Detailing and Lettering, Construction of Cornices, Skylights, Molding, Copings, Electrically Illuminated Signs, etc.

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Manual of Automotive Radiator Construction and Repair, by F. L. Curfman and T. H. Leet—Anyone interested in Radiator Repairing will find the 185 pages of practical instructions and 120 illustrations showing actual construction and repairing a big help. In a condensed manner some four to five thousand answers to questions are given. It is thoroughly practical, as both authors are men of wide experience in this work. Printed in large, easy to read type. Measures 5¾x9 inches. Price $2.50. Order from Book Department, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

## BOOKS

Exhaust and Blow Piping, by Hayes—Exhaust and Blow Piping has had an unusually big demand. A fresh supply is now off the press and is in our hands for immediate delivery. It has an invaluable treatise on the planning, cost, estimation and installation of fan piping in all its branches, giving all necessary guidance in fan work blower and separator construction. 159 pages, 5x8. 51 figures. Cloth. $2.00. Order from Book Department, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Illinois.

The Standard Code Computing Rule, which is adapted from Article III of the 5th Edition of the Standard Code, is being used by warm air heating men all over the country. Here is what the Computing Rule will determine: (1) The warm air pipe and register areas for first, second and third floor rooms. (2) The areas necessary for 70 degrees inside temperature when the outside temperatures are zero, 10, 20 and 30 degrees above or below zero. (3) The areas from the contents, glass, wall, roof and ceiling. The factors as covered in Table "A" are represented in accurate form. (4) The areas for rooms having one, one and one-half and two air changes per hour. (5) The unusual exposure requirements as the 10 per cent for each and west and 15 per cent for northeast, north and northwest rooms. Rule is circular, measuring 5½ inches in diameter and ⅛ inch thick, being made of specially prepared celluloid. Washable and unbreakable.

Price, $3.00, postpaid, from Book Department, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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### WANTED

Manufacturers' agents to handle furnace cement, roofing paint and cement, calking compound. Exclusive territory, commission basis. Address E-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

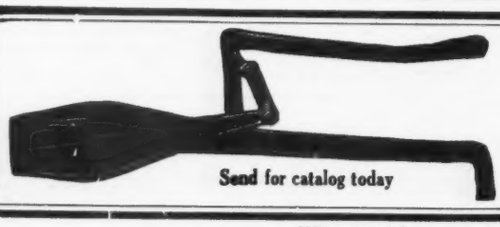
Established manufacturer of steel furnaces wants a capable salesman for Michigan and northern Indiana. Only those of proven reputation and ability to sell quality furnaces will be considered. Address F-523, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Illinois.


# SPECIAL NOTICE!

**To Manufacturers in This Industry**

The problem of preparing correct, attractive and forceful trade paper and direct mail copy can be solved economically. Whether you are interested in one advertisement or direct mail piece or an entire campaign we advise you to consult us. We have a wide experience in the warm air heating industry. MAT FRIEDMAN & ASSOCIATES, 155 N. Clark St., Chicago.

G523



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June 2

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THE FINEST elbow ever made. Double lock seamed on the outside—added strength where it is most needed, an exclusive Barnes feature. Twice the usual number of crimps—less distortion of metal—smoother curve—angle more accurate—longer taper—easier fit. Accurate as to size and full weight guaranteed. Every elbow plainly trademarked, with size, gauge and angle.

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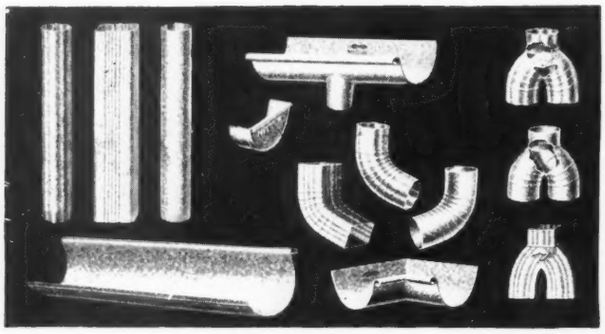

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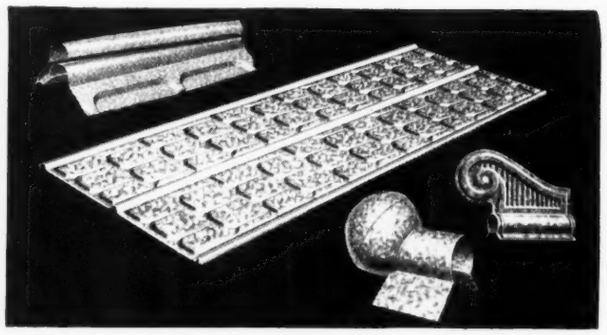
*Milcor* Conductor Pipe, Elbows and Eaves troughs are unusually strong and always fit perfectly . . . . They may be had in sheet steel, Armco Ingot Iron, Copper Alloy Steel or Copper. The *Milcor* line leads in value and completeness.



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*Milcor* Ornamental "Twodrain" is the best looking metal roofing on the market. The two drain channels are absolutely leak-proof. Easily laid . . . and ends may be lapped or end locked. Write the nearest *Milcor* branch for full information.

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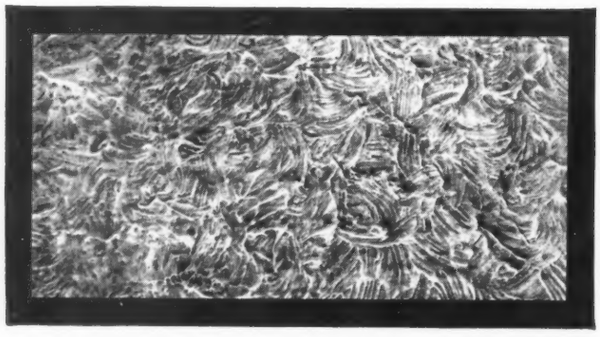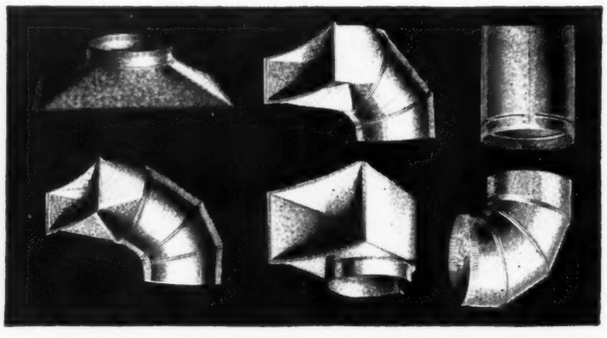
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